SPECTRUM®

Ungermann Bass Hub Management Module Guide

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Preface

You should read this guide if you are going to manage an Ungermann Bass Hub through SPECTRUM.

What Is in This Guide

This guide provides all the information you need to create, configure, and manage Ungermann Bass Hubs in SPECTRUM. Before reading this document, you should be familiar with SPECTRUM's functions and any hardware manuals associated with the Ungermann Bass Hub.

This guide is organized as follows:

Chapter	Description
Chapter 1 **Introduction**	Describes the Ungermann Bass management module and model types.
Chapter 2 **Device View**	Describes the Interface and Chassis Device View.
Chapter 3 **Configuration View**	Provides a general description of the configuration views associated with the Ungermann Bass hubs.
Chapter 4 **Ethernet Applications**	Describes each Ethernet major application and its minor applications.
Chapter 5 **Hub Applications**	Describes the Card + Hub major application and its minor applications.
Chapter 6 **Token Ring and TR Tier Applications**	Describes the Token Ring and TR Tier major applications and minor applicastions.

Chapter	Description
Chapter 7 **FDDI Applications**	Describes the FDDI major applicastions and minor applications.
Chapter 8 **Other Applications**	Describes all other applications not previously described in other applications chapters. Other applications include Bridging, Token Ring, TR Tier, FDDI, and Trap.
Chapter 9 **Event and Alarm Messages**	Lists and explains the event/alarm messages generated in the Event Log or Alarm Log View for any model of an Ungermann Bass hubs.

Terminology

This section defines several terms used in this guide to describe the Ungermann Bass concentrator and board model types. The terms are as follows:

Hub

For the purposes of this guide, the general term hub replaces the term **concentrator** in representing Ungermann Bass devices.

Hub chassis

The software model representation of the Ungermann Bass hub (4 or 12 slots) with no boards installed in any of its slots.

MIMs (Media Interface Modules)

The software model representations of boards installed in an Ungermann Bass hub chassis. There are two types of **MIMs**: **Intelligent MIMs**, which provide network management functions and network media interfacing; and **Non-Intelligent MIMs**, which provide interfaces to different kinds of network media, but have no network management capabilities.

Refer to the specific Ungermann Bass hardware manual for a detailed description of your particular Ungermann Bass hub or Media Interface Module.

Conventions

In this manual the following conventions are used:

- Command names are printed in **bold**; for example, **Clear** or **Save & Close**.
- Menu selections to access a view are printed in **bold**; for example, **Configuration** or **Detail**.
- Buttons are represented by a shadowed box; for example,

Help

Related SPECTRUM Documentation

Refer to the following documentation for more information on using SPECTRUM and managing TCP/IP-based networks:

How to Manage a Network with SPECTRUM

SPECTRUM AutoDiscovery User's Guide

SPECTRUM Model Type Editor User Guide

Other Related Documentation

Refer to the following documentation for more information on using SPECTRUM and managing TCP/IP-based networks:

Computer Networks, Andrew S. Tanenbaum, Prentice-Hall, Inc.

Internetworking Technology Overview, Cisco Systems, Inc. (1993, Cisco Systems, Inc.)

LAN Troubleshooting Handbook, Mark Miller (1989, M&T Publishing, Inc.)

Local Area Networks, Architectures and Implementations, James Martin & Kathleen K. Chapman for the Arben Group, Inc. (1989, Prentice-Hall, Inc.)

The Simple Book — An Introduction to Management of TCP/IP-based Internets, Marshall T. Rose, Performance Systems International, Inc.

To learn more about the Ungermann Bass hub, refer to the appropriate Ungermann Bass documentation.

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spectrum-techdocs@ctron.com

Chapter 1

Introduction

What Is in This Chapter

This chapter describes the SPECTRUM Management Module for Ungermann Bass Hubs. It also provides the model type name(s) assigned to the Ungermann Bass Hub(s) in SPECTRUM. The model type name refers to the template used to specify device attributes, actions, and associations for device models in SPECTRUM.

Ungermann Bass Hub Model Types

Table 1-1 lists the model types for the 2, 5, and 11-slot Access/One hubs. For this release of SPECTRUM, the Ungermann Bass Hub Management Module supports the intelligent hub MIM devices listed. A brief description follows the model type name. In SPECTRUM, the model type name appears in a text label at the bottom of the Ungermann Bass Hub icon. The Virtual Network Machine (VNM) supplies the model type name.

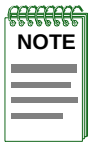
Table 1-1. Model Type Description

Model Type	UB Supervisor	Type	Description
HubUB700	SUPRV-700	ASM-700	Supervisor Ethernet Baseband
HubUB700s_au	AUSUP-700S	ASM-700S	Supervisor AUI for 2-slot enclosure

Table 1-1. Model Type Description (Continued)

Model Type	UB Supervisor	Type	Description
HubUB700s_fo	FOSUP-700S	ASM-700S	Supervisor FOIRL for 2-slot enclosure
HubUB700s	SUPRV-700S	ASM-700S	Supervisor, no media for 2-slot enclosure
HubUB700s_tp	TPSUP-700S	ASM-700S	Supervisor EOTP for 2-slot enclosure
HubUB701	SUPRV-701	ASM-701	Supervisor Ethernet Baseband
HubUB710br	BRSUPRV-710	ASM-710	Supervisor, Baseband, Buffered Repeater
HubUB760br	BRSUPRV-760	ASM-760	Supervisor Baseband, Buffered Repeater
HubUB780	SUPRV-780	ASM-780	Supervisor TR 4Mbit
HubUB790	SUPRV-790	ASM-790	Supervisor TR 4/16Mbit
HubUB790s4	SUPRV-790s	ASM-790s4	Supervisor TR 4Mbit for 2-slot enclosure
HubUB790s16	SUPRV-790s	ASM-790S	Supervisor TR 16Mbit for 2-slot enclosure

Each MIM that can be installed in an Ungermann Bass Hub is also represented by a software model in the VNM database.



If you are running a previous version of SPECTRUM, the following user interface aspects may differ from those in SPECTRUM version 4.0:

- Order and names of menu selections
- Navigational features (mouse button functionality)

Chapter 2

Device View

What Is in This Chapter

This chapter describes the Device View for the Ungermann Bass Hub Management Module.

The Device View for the Ungermann Bass Hub provides two device-specific informational views; the Chassis Device View and the Interface Device View. Each device View gives an actual representation of the Ungermann Bass Hub's configuration and also provides you with menu bar access to the views that manage and control the Ungermann Bass Hub, its modules, and the modules' ports. If the configuration changes, the corresponding change(s) is displayed.

The Chassis Device View allows you to view the logical representations of the Ungermann Bass Hub's ports. Figure 2-1 shows an example of the Ungermann Bass Hub Chassis Device View.

The Interface Device View provides configuration and performance information for the Ungermann Bass Hub. If the configuration changes, you see the corresponding change within this view after the model's next polling cycle.

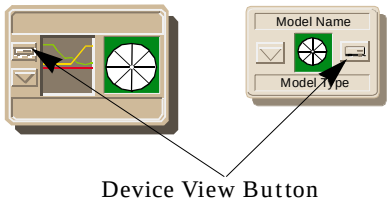
Chassis Device View

The Ungermann Bass Hub Chassis Device View displays a logical representation of each module installed in the hub. Figure 2-1 provides an overview of the process for accessing the Chassis Device View.

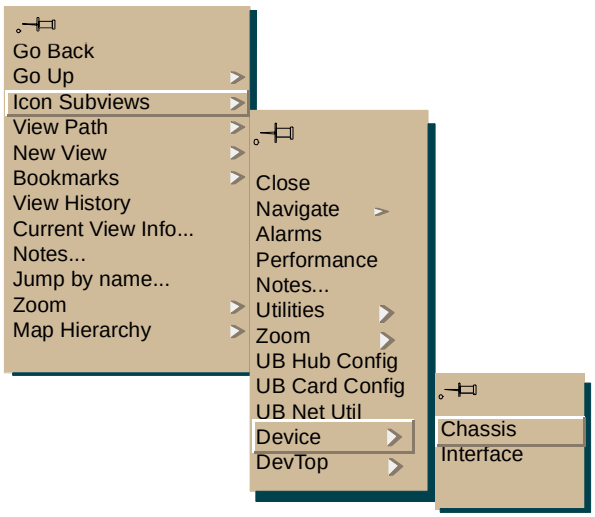
Accessing the Chassis Device View

Access the Chassis Device View using one of the following methods:

- Double-click on the Device View button of the Ungermann Bass hub device icon. This will open the Device View that was opened last (i.e. Chassis, Interface, or Physical).



- Highlight the device icon and select **Device -> Chassis** from the Icon Subviews menu.



Ungermann Bass Hub Logical Module Representation

The logical module representation provides gauges and information about the individual modules. An example is shown in Figure 2-1. A logical module can be divided into block rows of information pertaining to the Ungermann Bass Hub:

- The top two rows represent information about the module.
- The lower rows represent information about each port on the module.

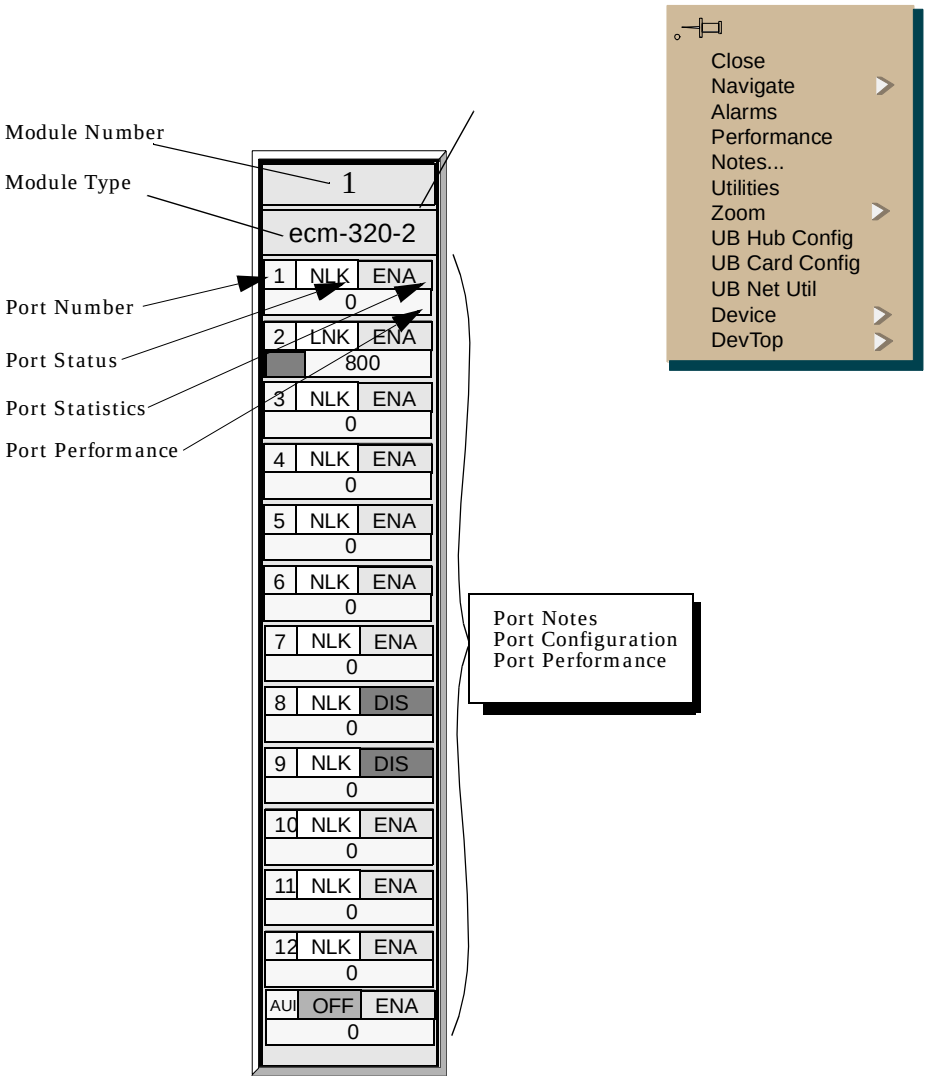
Figure 2-1. Logical Module Representation of the Ungermann Bass Hub Chassis Device View

Ethernet Logical Module Representation

The Ethernet Logical Module representation provides gauges and information about this individual module. An example is shown in Figure 2-2. You can view this information by clicking upon either of the two top-most blocks of an Ethernet Logical Module icon. A logical module can be divided into two areas:

- the top-most two blocks represent information about the (highlighted) module
- each lower section of highlighted blocks represents information about each port on the module

Figure 2-2. Ethernet Logical Module Detail for the Ungermann Bass Hub



Ethernet Logical Module Details

A description of each Ethernet Logical Module Icon block row is listed below:

Module Number

The number of the slot that the module is connected to.

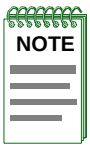
Module Type

The type of module in this slot.

You may view the Ethernet Logical Module menu choices by double-clicking the right mouse button on the previously selected (highlighted) block. Table 2-1 describes the subview menu choices for the Ethernet Logical Module Icon.

Table 2-1. Ethernet Logical Module Menu Choices

Menu Selection	Description
Navigate	Opens the Navigator submenu, which allows you to select one of two possible navigational choices. For more information on the Navigator submenu, refer to Chapter 4 in ***SPECTRUM Views***.
Alarms	Opens the SPECTRUM Alarms View containing alarms (if any) for the port.
Notes...	Opens the Ethernet Model Notes View.
Utilities (if supported)	Opens the Utilities submenu, which allows you to access any utilities you have purchased for use with SPECTRUM, such as SPMA Applications, PathView, SpectroWATCH, or SpectroGAURD.
Module Notes	Opens the Notes for GnModule of type GnModule View.
Module Configuration	Opens the Ethernet Cluster Configuration View.



The Navigate, Utilities, Notes..., Events, and Alarms menu choices display in every logical module icon and port icon subviews menu selection.

Ethernet Port Icon Details

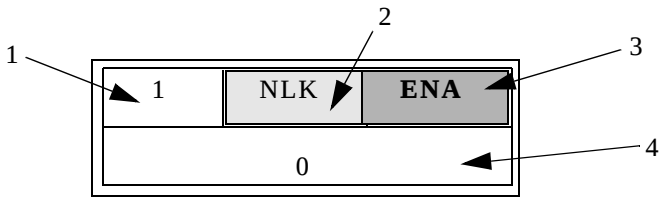
You may view the Ethernet Port menu choices by double-clicking the right mouse button on the selected Port Icon. Table 2-2 describes the application-specific subview menu choices for the Ethernet Port Icon.

Table 2-2. Ethernet Port Icon Menu Selection

Menu Selection	Description
Port Notes	Opens the GnPort Notes View.
Port Configuration	Opens the Port Configuration View.
Port Performance	Opens the Ethernet Concentrator Port Performance View.

Figure 2-3 shows the Ethernet Port Icon labels or click zones. Descriptions for each icon label follow.

Figure 2-3. Ethernet Port Icon



1. Port ID/Port Notes Label
2. Management Status Label
3. Port Information View Label
4. Concentrator Port Performance View

Port ID/Port Notes Label

Label 1 provides the port identifier number and access to the port notes view.

Ethernet Management Status Label

Label 2 provides the status, description, and color of the Ethernet port icon and are described as follows:

NLK (no link)	Yellow
LNK (link)	Green
Off (disabled)	Blue

Port Information View Label

Label 3 provides the status, description, and color of the Ethernet port icon which is described as follows:

ENA (enabled)	Green
DIS (disabled)	Red

Concentrator Port Performance View

Label 4 provides the Ethernet Concentrator Port Performance View.

TR Tier Logical Module Representation

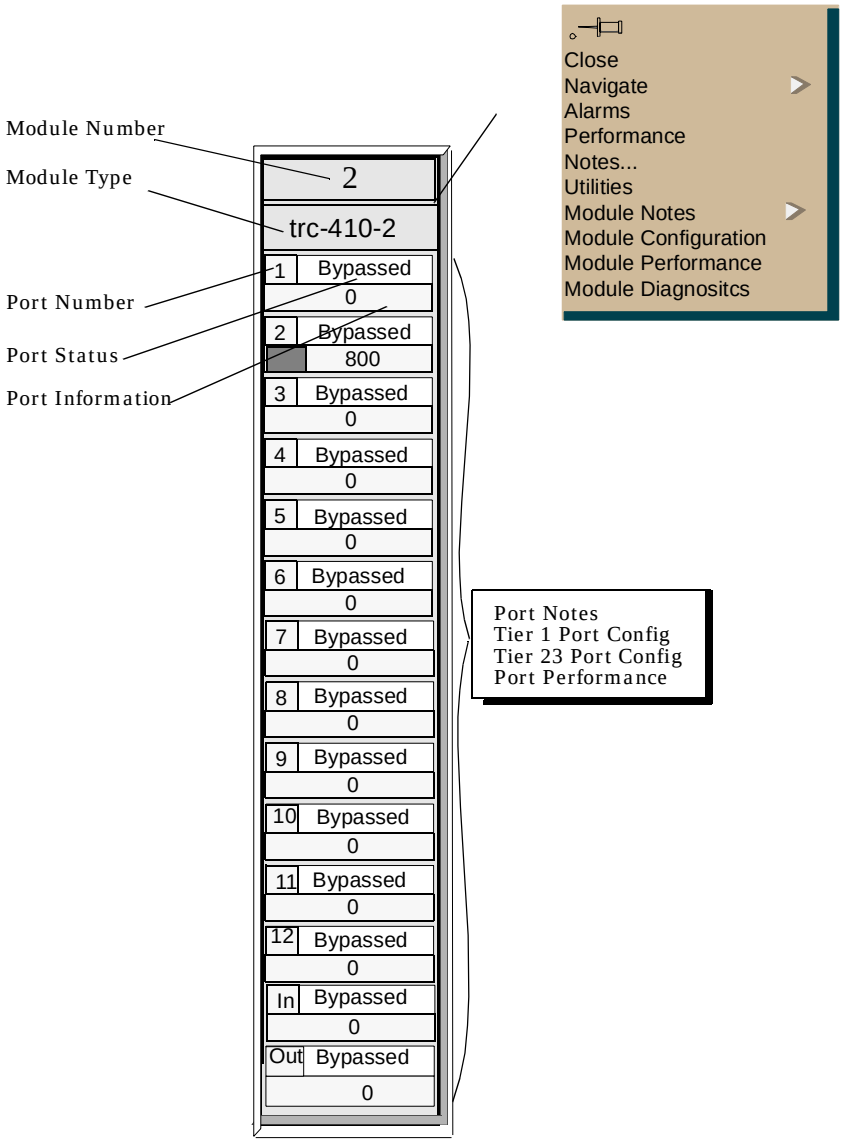
The TR Tier Logical Module representation provides gauges and information about the TR Tier module. You may select the module by clicking on either of the two top-most blocks of a TR Tier Logical Module Icon. A description of the information accessible from each block is listed below:

Module Number
The number of the slot that the module is connected to.

Module Type
Displays **tpsup-700s**; the type of module in this slot.

Figure 2-4 shows an example of a TR Tier Logical Module representation.

Figure 2-4. TR Tier Logical Module Detail for the Ungermann Bass Hub



TR Tier Logical Module Menu Selections

You can access the TR Tier Logical Module menu by double-clicking the right mouse button on either of the two top-most blocks of the TR Tier Logical Module Icon (refer to Figure 2-4). You can also access the module menu by clicking near the top of the logical module to highlight it and then selecting **Icon Subviews** from the **View** menu.

TR Tier Logical Module Details

The TR Tier Logical Module icon provides access to the following information:

Module ID
The number of the slot that the module is connected to. Click this block to access the Port Notes View.

Module Type
The TR Tier module type.

Table 2-3 describes the TR Tier Logical Module Icon application-specific menu choices.

Table 2-3. Token Ring Logical Module Icon Menu

Menu Selection	Description
Module Notes	Opens the Notes for GnModule of type GnModule View.
Module Configuration	Opens the Token Ring Concentrator Card Information View.
Module Performance	Opens the Token Ring Concentrator Card Performance View.
Module Diagnostics	Opens the Token Ring Concentrator Card Diagnostics View.

TR Tier Port Icon Details

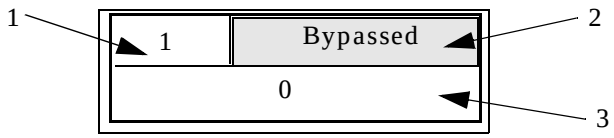
You can access the Port Icon Menu by double-clicking the right mouse button on a port or by clicking on a port and selecting **Icon Subviews** from the **View** menu. Table 2-4 describes the Port Icon application-specific menu choices.

Table 2-4. TR Tier Port Icon Menu

Menu Selection	Description
Port Notes	Opens the Port Notes View.
Tier 1 Port Config	Opens the TR Tier Port Information View, for basic insertion state statistics.
Tier 23 Port Config	Opens the TR Tier Port Information View with additional operational and receive/transmit information.
Port Performance	Opens the TR Tier Port Information View.

The TR Tier Port Icon also provides labels, or double-click zones, for accessing additional port information. Figure 2-5 describes the Port Icon labels.

Figure 2-5. TR Tier Port Icon



1. Port ID/Port Notes Label
2. Port Information View Label
3. Operational Status/Port Information View Label

Port ID/Port Notes Label

Label 1 provides the port identifier number and access to the Port Notes View.

Port Information View Label

Label 2 provides the status, description, and color of the TR Tier port icon which is described as follows:

Bypassed	Yellow
Inserted	Green

If the module is in the Bypassed mode, "**Bypassed**" is displayed; if the module is in the insert mode, "**Inserted**" is displayed. Double-click this block to access the Token Ring Port Information View. The fields for this view are described under the TR Tier Application.

Operational Status/Port Information View Label

Label 3 provides the TR Tier Port Information View's port diagnostics, receive, and transmit performance information.

Card + Hub Logical Module Menu Selections

You can access the Card + Hub module menu by double-clicking the right mouse button on the modules (refer to Figure 2-2). You can select a menu option box by double-clicking the right mouse button on the appropriate block. You can also access the module menu by clicking the logical module to highlight it and selecting **Icon Subviews** from the **Card + Hub View** menu.

Card + Hub Logical Module Details

You may view the Card + Hub Logical Module menu choices by double-clicking the right mouse button on either of the two top Logical Interface blocks. Table 2-5 describes the subview menu choices for the application-specific Card + Hub Logical Module Icon.

Table 2-5. Card + Hub Logical Module Icon Subviews Menu Choices

Menu Selection	Description
Module Notes	Opens the Notes for GnModule of type GnModule View.
Module Configuration	Opens the Access/One Board Status View.

Card + Hub Port Icon Details

You may view the Card + Hub Port menu choices by double-clicking the right mouse button on the selected Port Icon.

FDDI Logical Module Representation

Each FDDI Logical Module representation provides gauges and information about the FDDI module. You may view this information by double-clicking clicking on either of the two top-most blocks of a **FDDI Logical Module Icon**; a description of each is listed below:

Port ID/Port Notes Label
Label 1 provides the port identifier number and access to the Port Notes View.

Module Type
Label 2 provides the FDDI module type.

FDDI Logical Module Details

You may view the FDDI Logical Module menu choices by double-clicking the right mouse button on either of the two top-most **FDDI Logical Module Icon** blocks. Table 2-6 describes the subview menu choices for the application-specific FDDI Logical Module Icon.

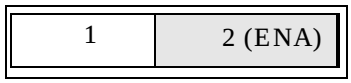
Table 2-6. FDDI Logical Module Application-Specific Menu Choices

Menu Selection	Description
Module Notes	Opens the Notes for GnModule of type GnModule View.
Module Configuration	Opens the Access/One Board Status View.

FDDI Port Icon

The FDDI Port Icon allows you to access informational areas pertaining to a specific FDDI port. Each FDDI port icon provides labels, or double-click zones, for accessing port information. The icon labels are shown in Figure 2-6, followed by a label description.

Figure 2-6. FDDI Port Icon



1. Slot ID Label
2. Port Status Label

Slot ID Label

Label 1 provides the IP address for this concentrator and access to the Notes View.

Port Status Label

Label 2 provides an indication of the connect state of this port. States are notApplicable, Enabled, and Disabled.

Token Ring Logical Module Representation

The Token Ring Logical Module representation provides gauges and information about the Token Ring module. You can view this information by double-clicking with the right mouse button on either of the two top-most blocks of the **Token Ring Logical Module Icon**. A description of each is listed below.

Token Ring Logical Module Details

The Logical Repeater module icon for the Token Ring application consists of the following click zones providing information pertaining to the module.

Port ID/Port Notes Label
Label 1 provides the port identifier number and access to the Port Notes View.

Port Status
The channel to which the module is connected. Double-click this block to access the Token Ring Port Information View.

Table 2-7 describes the TR Tier Logical Module Icon application-specific menu choices.

Table 2-7. Token Ring Logical Module Icon Menu

Menu Selection	Description
Module Notes	Opens the Notes for GnModule of type GnModule View.
Module Configuration	Opens the Token Ring Concentrator Card Information View.
Module Performance	Opens the Token Ring Concentrator Card Performance View.
Module Diagnostics	Opens the Token Ring Concentrator Card Diagnostics View.

Token Ring Port Icon Details

The Token Ring Port Icon provides labels or double-click zones for accessing port information. The icon labels are described below:

Figure 2-7. FDDI Port Icon

1. Port ID Label
2. Operational Status Label

Port ID Label

Label 1 provides the relative port number on the card starting from 1.

Operational Status Label

Label 2 displays the operational status for this Token Ring port. States are Station Inserted, Self Bypass, and Port Error.

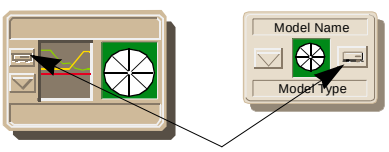
Interface Device View

The Interface Device View is accessed by selecting **Device** from the Ungermann Bass Hub model's Icon Subviews menu and then selecting **Interface** from the Device menu.

Accessing the Ungermann Bass Device View

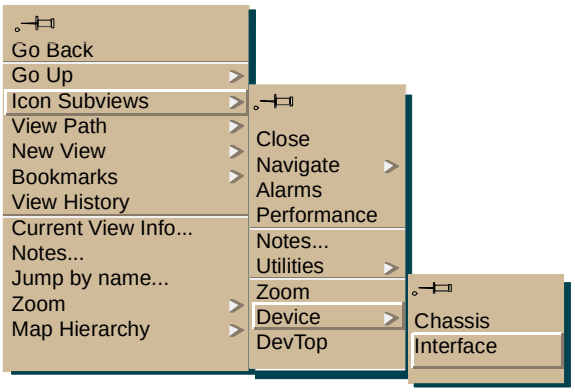
Access the Interface Device View using one of the following methods:

- Double-click on the Device View button of the Ungermann Bass device icon. This will open the Device View that was opened last (i.e. Chassis, Interface, or Physical)



Device View Button

- Highlight theUngermann Bass device icon and select **Device -> Interface** from the Icon Subviews menu.



Device Icon Panel

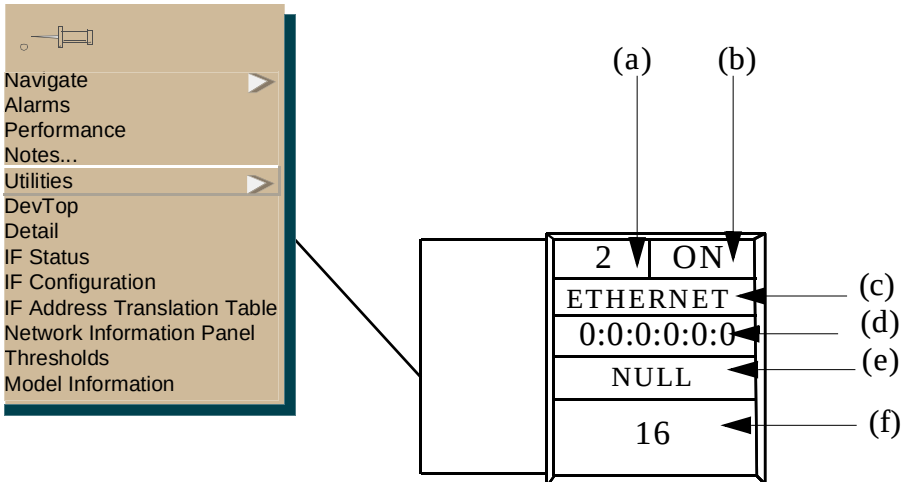
The Device Icon Panel displays the Ungermann Bass Hub Location/Topology View Icon. The icon provides the same functionality for the Location/Topology View Icon as described in *How to Manage a Network with SPECTRUM*.

Logical Interface Icons

An Ungermann Bass Hub Device View displays a logical representation of each of the router's interfaces. An interface icon represents each port on the Ungermann Bass Hub. Additional views for the interface can be accessed by single-clicking the interface icon to highlight it and selecting **Icon Subviews** from the **File** menu or double-clicking with the right mouse button on the icon's zones. The Port Notes facility is also accessed from the **Icon Subviews** menu.

The Logical Interface Icon consists of six zones, or labels, providing configuration and performance information. Figure 2-8 provides a detailed illustration of the Logical Interface Icon and the following sections detail each icon zone.

Figure 2-8. Ungermann Bass Hub Interface Icon



a. Device Topology View/Interface Number Label

b. IF Status View Label

c. IF Configuration View/Interface Type Label

d. IFAddress Translation Table/Physical Address Label

e. Network Information Panel/Network Address Label

f. Interface Performance View/Logical Gauge Labe

Device Topology View/Interface Number Label

Double-clicking on zone (**a**) of the Interface Icon accesses the Ungermann Bass Hub's Device Topology (DevTop) View. Zone (**a**) also displays the interface number.

IF Status View Label

The IF Status View label (zone **b**) displays a text label and an appropriate background color to represent the current status of the interface. Table 2-8 shows the possible interface statuses and their respective colors.

Table 2-8. Operational/Administrative Background Colors

Operational Status	Administrative Status	Text Display	Color
ON	ON	ON	Green
OFF	OFF	OFF	Blue
OFF	ON	OFF	Yellow
Testing	Testing	Test	Red

Double-clicking the IF Status View label accesses the Interface Status View which provides the following information on the status of the interface:

Operational Status
A read-only indicator button displaying the current operational state of the interface (Default, ON, OFF, or Testing).

Administrative Status
The desired operational state of the interface. You can select one of the following choices: Default, ON, OFF, or Testing.

IF Configuration View/Interface Type Label

The IF Configuration View label (zone **c**) displays the Ungermann Bass Hub-type interface. Double-clicking on the **ETHERNET** icon accesses the **Interface Configuration View**, with the following information:

Operation Status
This read-only field provides the current operating condition of the interface for which the entry exists. Possible interface types are On, Off, or Testing.

Admin. Status
The desired operational state of the interface (On, Off, or Testing).

Last Change
The System UpTime value when the interface entered its current operational state.

Network Name/Address
The network names and addresses display in this mid-view field.

Physical Address
The Ethernet (MAC) address of the interface.

Bandwidth
The estimated bandwidth of the interface measured in bits per second. For interfaces that do not vary in bandwidth, or for which no accurate estimate can be made, a nominal bandwidth is provided.

Packet Size
The largest packet that can be transmitted or received by the port measured in octets.

Queue Length
The length of the outbound packet queue in packets.

The Interface Configuration View may also be accessed by clicking the **Config** button in the Performance View (zone **f**). This view is described later in this **chapter**.

IF Address Translation Table/Physical Address Label

The IF Address Translation Table (zone **d**) displays the physical address of the Ungermann Bass Hub interface. Double-clicking on zone (**d**) accesses the Interface Address Translation Table. This table cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information View.

Sort
Columns in the table can be sorted incrementally by single-clicking the Sort button.

Find
A particular statistical entry can be located by single-clicking the Find button and entering the statistic.

Update
The table can be updated by single-clicking the Update button.

Interface Index
This is the interface index number.

Physical Address
This is the physical address of the Ungermann Bass Hub interface.

Network Information Panel/Network Address Label

Double-clicking zone (**e**) of the Logical Interface Icon accesses the Network Information Panel. This panel provides Name, Network Address, and subnet mask information for the interface. Any of the network information entries from this panel can be displayed on zone (**f**) of the Logical Interface Icon. Refer to the Interface Options Panel section of this chapter. Click **OK** or **Cancel** to close this view.

Interface Performance View/Logical Gauge Label

Double-clicking on zone (**f**) of the Interface Icon accesses the Performance View for the interface. This area includes a multi-attribute line graph and Logical Gauge which are described in the next section. The Performance View provides routing information for this interface. The view summarizes traffic flow in packets.

Multi-Attribute Line Graph

The Multi-Attribute Line Graph provides a general indication of routing activity. The attributes displayed are pre-selected and use colors to represent different statistics. The colors have the following definitions:

Green	Load
Blue	Packet Rate
Red	Error Rate
Gray	Discard Rate

For more information on the Multi-Attribute Line Graph, refer to ***SPECTRUM Views***.

Multi-Attribute Line Graph Buttons

These gray buttons allow you to modify the statistical presentation of the Multi-Attribute Line Graph.

Lin/Log

This button toggles between a linear or logarithmic scale presentation of the graph.

Scroll to Date-Time

This button allows you to set the viewing area of the graph to begin at a specified date and time.

Change Time Scale

This button allows you to specify the Y-axis time scale for the graph.

Performance View Buttons

In addition to the Multi-Attribute Line Graph, the Interface Performance View provides a button that allows you to access more detailed statistical views.

Detail

This button accesses the Interface Detail View which provides three color-coded pie charts displaying packet breakdown information for the interface. Each statistic is presented as a total amount from the time the interface was initialized and as a percentage of overall network traffic.

Interface Detail View

The Interface Detail View is accessed by clicking on the **Detail** button in the **Performance View**. It provides three color-coded pie charts displaying packet breakdown information for the interface. Table 2-9, Table 2-10, and Table 2-11 list the information provided by these pie charts.

Each statistic is presented as a total amount from the time the interface was initialized and as a percentage of overall network traffic.

Table 2-9. Packet Breakdown Pie Chart

Statistic	Definition
Delivered	Packets delivered to a high level protocol.
Transmitted	Packets transmitted through this interface.
Errors	Packets containing errors preventing them from being delivered to a higher level protocol.
Discards	Packets discarded even though no errors were detected to make them undeliverable - such packets may have been discarded to increase buffer space.

Table 2-10. Error Breakdown Pie Chart

Statistic	Definition
In Errors	Packets received containing errors.
Out Errors	Packets transmitted containing errors.

Table 2-11. Discard Breakdown Pie Chart

Statistic	Definition
Unknown	Locally addressed packets received successfully but discarded because of an unknown or unsupported protocol.
In Discards	Received packets discarded even though no errors were encountered to prevent their continued processing - such packets may have been discarded to increase buffer space.
Out Discards	Transmitted packets discarded even though no errors were encountered to prevent their continued processing - such packets may have been discarded to increase buffer space.

Config

This button accesses the Interface Configuration View which provides statistics related to the configuration of the individual bridge ports. The

Interface Configuration View fields are discussed in the IF Configuration View /Interface Type zone **c** section earlier in this chapter.

Threshold

This button accesses the Interface Threshold View. The Interface Threshold View allows a user to set statistical thresholds on a per interface basis. Thresholds can be set for the following statistics:

- Out Load
- Out Packet Rate
- Out % Error Rate
- Out % Discarded

When a threshold is exceeded, an event is generated, and the Ungermann Bass Hub icon turns yellow.

Events

This button accesses the Events Log which provides a history of the interface's status at specific times. For more detailed information on the Events Log, refer to ***SPECTRUM Views***.

Alarms

This button accesses the Alarms View which provides information on current alarm conditions (if any) for the interface. For more detailed information on the Alarms View, refer to ***SPECTRUM Views***.

This button accesses an additional Performance View providing information on network traffic transmitted by this interface.

Receive

This button accesses an additional Performance View providing information on network traffic received by this interface. This view allows a user to monitor traffic statistics on a per interface basis. Thresholds can be set for the following statistics:

- In Load
- In Packet Rate
- In% Error Rate
- In% Discarded

When a threshold is exceeded, an event is generated, and the Ungermann Bass HubUngermann Bass Hub icon turns yellow.

Interface Option Panel

The Interface Options Panel area of the Device View allows a user to modify the presentation of the Logical Interface Icon.

Find

The Find area of the Interface Options Panel allows a user to find a specific interface by selecting either the interface's Physical Address, IP Address, Type, or Network Name and entering the appropriate information in the Pop-up dialog box. Once the information is entered, the corresponding area of the specific Logical Interface Icon appears highlighted. The Find option also looks for and displays other addresses in the Network Information Panel.

Network Information

The Network Information area of the Interface Options Panel allows a user to select what interface information is displayed in the Network Information Label zone of that interface's Logical Interface Icon. Possible selections are **ADDRESS**, **NAME**, or **MASK**.

Interface Description

Selecting a Logical Interface Icon displays the type of interface in the Interface Description area of the Interface Options Panel. Double-clicking on the Interface Description field accesses the Interface Description Map View which provides a table's mapping interface numbers and descriptions.

This view can also be accessed by single-clicking on the Interface Options Panel to highlight it and then selecting **Inf Description Map** from the **Icon Subviews** menu. Double-clicking on a column entry in the Interface Description Map accesses the Interface Configuration View described previously.

Gauge Control Panel

The Gauge Control Panel allows a user to change the type of statistical information presented in the Logical Gauge area of the Logical Interface Icon. To access the Gauge Control Panel, either double-click anywhere on the Interface Options Panel or single-click on the panel to highlight it and then select **Gauge Control Panel** from the **Icon Subviews** menu.

Selected Attribute

This area of the Gauge Control Panel allows a user to select the statistical attribute displayed on the Logical Interface Icon's Gauge. The label changes color to reflect the attribute selected. Table 2-12 and Table 2-13 provide a list of the attributes and their corresponding colors.

Gauge Mode

This area of the Gauge Control Panel allows a user to select the mode presented by the Logical Gauge. Possible selections are Totals, Rates, or Percentages. The Percentages selection represents the percentage of the interface compared to the rest of the interfaces. Table 2-12 shows the displayed attributes and their color definitions if the Totals or Percentages modes are selected. Table Table 2-13, shows the displayed attributes and their color definitions if the Rates model is selected.

Table 2-12. Performance View Gauge Rate Mode Attribute Definitions and Colors

Selected Attribute	Definition	Color
Load	The traffic load rate during uptime.	Green
Load In	The load rate at which packets have been received, device-wide, during uptime.	Green
Load Out	The load rate at which packets have been transmitted, device-wide, during uptime.	Green
Packet Rate	The total number of packets that have been occurred, device-wide, during uptime.	Blue
Packet In Rate	The total number of packets that have been received, device-wide, during uptime.	Blue
Packet Out Rate	The total number of packets that have been transmitted, device-wide, during uptime.	Blue
Error Rate	The total number of error packets that have occurred, device-wide, during uptime.	Orange
Error In Rate	The total number of error packets that have been received, device-wide, during uptime.	Orange
Error Out Rate	The total number of error packets that have been transmitted, device-wide, during uptime.	Orange
Discard Rate	The total number of error packets that have been discarded, device-wide, during uptime.	Beige

Table 2-12. Performance View Gauge Rate Mode Attribute Definitions and Colors (Continued)

Selected Attribute	Definition	Color
Discard In Rate	The total number of error packets received that have been discarded, device-wide, during uptime.	Beige
Discard Out Rate	The total number of error packets transmitted that have been discarded, device-wide, during uptime.	Beige

Table 2-13. Performance View Gauge Total/Percentage Mode Attribute Definitions and Colors

Selected Attribute	Definition	Color
In Errors	The total number of error packets that have been received, device-wide, during uptime.	Orange
Out Errors	The total number of error packets that have been transmitted, device-wide, during uptime.	Orange
In Packets	The total number of packets that have been received, device-wide, during uptime.	Blue
Out Packets	The total number of packets that have been transmitted, device-wide, during uptime.	Blue
Unknown Protocols	The total number of unknown packets that have occurred, device-wide, during uptime.	Yellow
In Discards	The total number of packets received that have been discarded, device-wide, during uptime.	Beige
Out Discards	The total number of packets transmitted that have been discarded, device-wide, during uptime.	Beige
In Octets	The total number of octets that have been received, device-wide, during uptime.	Green
Out Octets	The total number of octets that have been transmitted, device-wide, during uptime.	Green

Gauge Type

This option allows you to select either a numeric or linear presentation of the Logical Gauge.

Gauge Control Panel Buttons

The following buttons are available in the Gauge Control Panel:

Apply

Apply the current selections to the Logical Gauge. The settings are not saved.

Keep Settings

Save the current gauge settings while running SpectroGRAPH.

Reset

Reset back to the last Keep Settings selections.

Close

Close the Gauge Control Panel.

Default

Reset back to the default attribute of In Errors.

Chapter 3

Configuration Views

What Is in This Chapter

This chapter describes the Generic Information Block (GIB) Views available for each Ungermann Bass hub managed by the Simple Network Management Protocol (SNMP). These views allow you to access network configuration and monitoring information, traffic flow, and error data.

This chapter provides descriptions of the generic views that are available for the Ungermann Bass hub. These views allow you to access network configuration information, network traffic flow and error rates, and model information. The generic views are:

- Device Configuration View
- Performance View
- Diagnostic View
- Model Information View

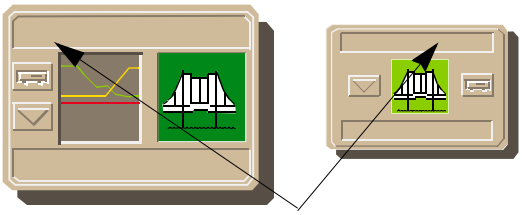
Device Configuration View

The Device Configuration View for the Ungermann Bass hub provides detailed information on the Ungermann Bass hub's network, host, port, and model configuration.

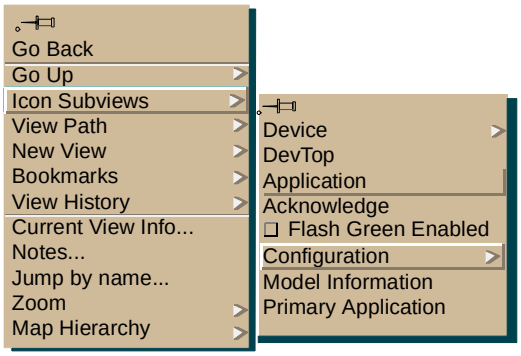
Accessing the Configuration View

Access the Device Configuration View using one of the following methods:

Double-click on the Configuration View label of the device icon.



- Highlight the Ungermann Bass device icon and select **-> Configuration** from the Icon Subviews menu.



Device Configuration View

The Device Configuration provides a Generic Banner View, the device name, contact status, and number of interfaces fields, followed by the IF Address Translation View button and the Interface Configuration Table. The fields for this view are described below:

Interface Configuration Table

The Interface Configuration Table provides port configuration information for each of the Ungermann Bass hub's ports as described below. (Double-clicking

Device Configuration View

on any column entry for a particular port brings up an Interface Configuration View for that port. This view provides the same information as the table but in a different format.)

Index
The port number on the Ungermann Bass hub is displayed.

Description
A textual description of the interface including the name of the manufacturer, the product name, and version number of the hardware interface is displayed.

Type
The type of interface for the port, distinguished according to the physical/link/network protocol(s) immediately below IP in the protocol stack, is displayed. Possible interface types and a brief description of each type are shown in Table 3-1.

Table 3-1. Ungermann Bass Hub Interface Types

Interface Type	Description
other	None of the following
regular	Regular 1822
hdh1822	HDLC Distant host protocol
ddn-x25	Defense Data Network X25
rfc877-x25	RFC877 X25
ethernet-csmacd	Ethernet CSMA/CD
iso88023-csmacd	ISO CSMA/CD
iso88024-tokenBus	ISO Token Bus
iso88025-tokenRing	ISO Token Ring
iso88026-man	ISO man
starLan	StarLAN IEEE802.3
proteon-10MBit	ProNET 10Mbps
proteon-80MBit	ProNET 80Mbps
hyperchannel	Hyperchannel
fddi	Fiber Distributed Data Interface
lapb	X25 Line Access Procedure, Balanced
sdlc	IBM Synchronous Data Link Control protocol
t1-carrier	T1 link (USA + Japan)

Table 3-1. Ungermann Bass Hub Interface Types (Continued)

cept	T1 link (Europe)
basic Isdn	Basic Integrated Services Digital Network
primary Isdn	Proprietary Integrated Services Digital Network
propPointToPointSerial	Proprietary Point to Point Serial

Bandwidth
The estimated bandwidth of the port measured in bits per second. For interfaces that do not vary in bandwidth, or when no accurate estimate can be made, a nominal bandwidth is provided.

Physical Address
The Ethernet (MAC) address of the port is displayed.

Operation Status
The current operational state of the port: On (ready to send packets), Off (down), or Testing (in test mode: no operational packets can be passed).

Admin Status
You can set the desired operational state of the port to On.

Last Change
The System UpTime value when the port entered its current operational state.

Queue Length
The length of the outbound packet queue in packets.

Packet Size
The largest Maximum Transmission Unit (MTU) that can be transmitted or received by the port (measured in octets) is displayed.

Click the **IF Address Translation** button in the Device Configuration View to access the Interface Address Translation Table.

IF Address Translation

This table cross-references device IP addresses to device MAC (Ethernet) addresses for selected nodes between networks. The read-only fields in the Interface Address Translation Table are described below:

Interface Index
A unique value for each interface. Its value ranges between 1 and the value of ifnumber. The value 0 for each interface must remain constant at least from one reinitialization of the entity's network management system to the next re-initialization.

Physical Address
The interface's address at the protocol layer immediately below IP in the protocol stack. The ethernet address of the bridge is returned for both channels of the bridge.

Network Address
The network address for the interface.

Double-clicking on any column entry opens the Address Translation Table Information View in which you can update the entry.

Address Translation Table Information View

The fields in the Address Translation Table Information View are similar to those in the Address Translation Table; you can update the information in this view only.

Performance View

The Performance View, accessible from the Ungermann Bass hub Location View, the Topology View, or Alarm and Find View icons is identical to the Performance View of the application selected as the Primary Application. The view provides a breakdown of network traffic errors for the Ungermann Bass hub. Each error attribute is summarized for the total interval since first poll and the rate interval between polls.You can access the Event Log and the Alarm View from the Performance View.

Diagnostic View

The Diagnostic View provides Performance View statistics, described in the last section, or application-specific performance tables. You can access the Alarm View and Event log for the device through the Performance View. Table 3-2 describes specific applications and matching views that appear when the Diagnostic menu choice is selected.

Table 3-2. Specific Performance Information Accessed from the Diagnostic Menu Choice

Application	View Description
MIB-II	Performance View with Multi-Attribute Line Graph

Table 3-2. Specific Performance Information Accessed from the Diagnostic Menu Choice (Continued)

ICMP	Performance View with Multi-Attribute Line Graph
IP	Performance View with Multi-Attribute Line Graph
TCP	Performance View with Multi-Attribute Line Graph
UDP	Performance View with Multi-Attribute Line Graph
Monitor Ether	Port Performance Table
FDDI	FDDI Card Performance View with Performance Table

Model Information View

The Model Information View provides attribute and configuration information for the Ungermann Bass hub or application model. To open the Model Information View, follow these steps:

1. Click on the Ungermann Bass hub icon to highlight it.
2. Select the **Icon Subviews** option from the **View** menu.
3. Select the **Model Information** option from the **Icon Subviews** menu.

Each section is discussed below:

General Information

This section of the Model Information View provides general information pertaining to the Ungermann Bass hub or application model including contact status values, model condition values, connector count values, and rollup threshold values.

MM Name
The product name of the management module.

MM Part Number
The part number of the management module.

MM Version Number
The version number of the management module.

Model Type
The type of SPECTRUM model.

Model Creation Time
The time and date that the model was created.

Model Created By
The user identification of the user that created the model.

Model State
The current state of the model. Possible values are: Initial, Active, Creating, Error, or Destroyed.

Security String
The assigned SPECTRUM security level for this model.

Condition
The current condition of the model. Possible values are: Green, Yellow, Orange, Red, Blue, Gray, or Initial. Refer to Table 3-1 for definitions of these condition values.

Condition Value
A value corresponding to the possible conditions. Possible values are: 0 = Green, 1 = Yellow, 2 = Orange, 3 = Red, 4 = Blue, 5 = Gray, 6 = Initial.

Contact Status
The status of the model. Possible values are: Established, Lost, or Initial.

Lost Child Count
The number of models below another model that have lost contact with their devices.

Value When Yellow
The value that will be assigned to the condition value when the model has a yellow condition. This value can be changed.

Value When Orange
The value that will be assigned to the condition value when the model has an orange condition. This value can be changed.

Value When Red
The value that will be assigned to the condition value when the model has a red condition. This value can be changed.

Communication Information

This section of the Model Information View provides Device Communications Manager (DCM) timeout and retry values and the community name.

DCM TimeOut
The time in thousandths of a second between retry attempts. The default value is 3000 and can be changed.

DCM Retry
The number of times that the DCM will attempt to send a request to a device that is not responding. The default value is 3 and can be changed.

Community Name
The SNMP community name that has been assigned to the Ungermann Bass hub. This value can be changed.

Mgmnt Protocol
The protocol that is being used to manage the model: SNMP.

Poll/Log Information Section

This section of the Model Information View provides information on the model's polling and attribute configuration.

Poll Interval
SpectroSERVER will read all attributes of the model flagged as "POLLED" at set intervals in seconds. The default value is 60 seconds and can be changed.

Polling Status
This button allows an administrator to disable SpectroSERVER polls of a model by setting Polling Status to FALSE. This is useful to disable rollup conditions for minor network events such as a workstation power-down.

Last Successful Poll
The last time, in milliseconds, since the SpectroSERVER successfully polled the model.

Log Ratio
The number of SpectroSERVER polls of a model that occur prior to logging the poll results in the database. The default value is 10 and can be changed.

Attribute List

The attribute names and handles that are currently being logged and polled by SpectroSERVER are displayed in the lower right section of the Model Information View. The Attribute List displays the attributes available for the Ungermann Bass hub that can have their Attribute Extension Flags set to "Logged" or "Polled." For information on this procedure, refer to the *SPECTRUM Model Type Editor User Guide.*

Chapter 4

Ethernet Applications

What Is in This Chapter

This chapter discusses the Ethernet applications for the Ungermann Bass Hub management module.

The Ethernet applications described in this chapter include the Basic Ether applications and the Ether Conc applications. The Basic Ether applications are discussed next, under Ethernet Applications, followed by a description of the Ether Conc applications under Other Ethernet Applications.

Ethernet Applications

The Ethernet applications supported by the Ungermann Bass Hub are listed as follows:

- Basic Ether
- EWA Monitor
- Monitor Ether

The supported cards for the Basic Ethernet are the ECM -320 -1, -2, -3, ECM -324 -2, and -3.

Each application is discussed in this chapter, along with each of the three application's sub-applications and associated fields.

Basic Ether Application

The Basic Ether Application supports the following additional sub-application views :

- Access/One Hub Cluster Configuration View
- Ethernet Basic Port
- Ethernet Extended Port

These views are described in the following sections:

Access/One Hub Cluster Configuration View

The Hub group contains each card in a hub cluster and includes all cards in an Access/One enclosure that constitutes a single repeater. Any Ethernet concentrator may belong to a hub cluster. When a card is added to an Ethernet bus hub cluster it retains its Group (card) management data, but resets its Hub management data.

You can open the Access/One Hub Cluster Concentration View by selecting **Cluster Config** from the Basic Ether Icon Subviews menu, or by selecting the Basic Ether icon, opening the View menu, and selecting **Cluster Config** from the Icon Subviews menu. The view and its fields are described below:

Slot
The card's relative position in the enclosure starting at 1.

Hub ID
The ID of this hub.

Status
The management status of this Ethernet port.

for
Indicates whether there is a known operational failure or problem in the hub.

Product ID
A string of ASCII characters representing the concentrator's product identifier.

Version
The firmware version for this hub.

You may double-click any entry in this table to access the Cluster Configuration View.

Cluster Configuration View

Double-clicking any entry in the Access/One Hub Cluster Concentration View provides the following product ID and hub reset information:

Slot ID
The card's relative position in the hub starting at 1.

Hub ID
A unique identifier within the hub enclosure of the hub cluster, representing the set of cards in an Access/One enclosure that constitutes a single repeater.

Product ID
A string of ASCII characters representing the concentrator's product identifier.

Version
A unique string for a specific manufacturer's product ID that identifies a concentrator's hardware or firmware version.

Group Capacity
The number of cards that can potentially be contained within a hub cluster.

Group Map
A bit string that indicates which enclosure slots are currently occupied by groups from this hub. The first bit (starting from the left) corresponds to the first relative slot. A "1" indicates a slot is occupied by a group that is part of this hub.

OK
Indicates whether there is a known operational failure or problem in the hub. A description of the operational states is described in Table 4-1.

Table 4-1. Hub Operational States

Health State	Description
other	Undefined or unknown.
Ok	No known failures or problems.
hubFailure	Failure affecting all groups.
groupFailure	Failure affecting all ports on one group.
portFailure	Failure of one or more but not all ports in a group.
generalFailure	Some other failure or problem not covered above.

Normal Operation
Displays information concerning the operational health of the hub and its components. Possible states are other, Normal Operation, Hub Failure, Group Failure, Port Failure, Control bus Error, or Temperature Problem.

Health data
Displays numeric information concerning the operational health of the hub and its components.

Hub Reset

Setting this object's value to Yes causes a hub to be reset without affecting the management state of the hub. The default choice is No if you do not want to reset the hub.

Last Reset at
Records the value of sysUpTime anytime the hub is reset without management data being reset. The resolution of the time stamp is only required to be 100 milliseconds, which is 10 TimeTicks.

Execute SelfTest 1

Setting this value to Yes requests that the hub perform a non-disruptive self-test.

Execute SelfTest 2

The hub performs a disruptive self-test, which does not affect management data and does not inject packets onto any segment. Packets received during this test may or may not be relayed. This test at least invokes the functionality of the Execute SelfTest2 for each group in this hub cluster.

Group Configuration

Click this button to access the Group Configuration View, which displays additional product information. The fields for this view are described below:

Product ID
A string of ASCII characters representing the resident supervisor's product identifier for the cluster of concentrators attached to the Ethernet bus. This cluster forms a single repeater.

Number of Ports
The number of ports in this group, including the AUI port, but not the Ethernet backplane bus port.

Electronic Serial No
The Organization Unique Identifier as defined in IEEE 802.1A, Overview and Architecture. This is the first 24 bits of UB's MAC address identifying UB uniquely worldwide and is a constant equal to 00DD00 in hexadecimal.

Ok
Indicates whether there is a known operational failure or problem in the hub. A description of the operational states is described inTable 4-2.

Table 4-2. Hub Operational States

Health State	Description
other	Undefined or unknown.
Ok	No known failures or problems.
hubFailure	Failure affecting all groups.
groupFailure	Failure affecting all ports on one group.
portFailure	Failure of one or more but not all ports in a group.
generalFailure	Some other failure or problem not covered above.

Normal Operation
Displays information concerning the operational health of the hub and its components.

Health Data
Numeric information concerning the operational health of the hub and its components.

Custom Counter Selection
Selects a port event that increments the Port Custom Counter associated with that port. Setting this attribute also sets the Port Custom Counter to zero. Each occurrence of the selected event increments by 1.

Carrier Senses
The number of times carrier sense was on when sampled every 10 milliseconds. This attribute applies only in tier 1.

Ethernet Basic Port View

You can open the Port Config View by selecting **Port Config** from the Basic Ether Icon Subviews menu, or by selecting the Basic Ether icon, opening the View menu, and selecting **Port Config** from the Icon Subviews menu. The view and its fields are described below:

Model Name
The model name for this concentrator.

Basic Port Table

Slot
The slot number for this port.

Port
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Port Type
This read-only object displays the type of this port. States are repeater and other.

Admin Status
The administrative state of a port; when the unlocked action is requested, a BEGIN is exerted upon the auto-partition state machine. Possible states are locked and unlocked.

Port Partition State
Indicates whether a port has been automatically partitioned by the hub's auto-partition protection. This happens if a port signals continuous collision or if there are greater than 30 consectutive collisions on the port.

You may double-click on any entry in this table to access the Port Configuration View. Port partition states are listed in Table 4-3.

Table 4-3. Port Partition States

Port Partition State	Description
Other	Not Applicable
notAutoPartitioned	Not Auto Partitioned
autoPartitioned	Auto Partitioned

Extended Port Config

Click this button to access the Ethernet Extended Port View.

Ethernet Extended Port View

You can open the Extended Port Configuration View by:

- selecting **Ext Port Config** from the Basic Ether icon Subviews menu
- highlighting the Basic Ether Icon, clicking the middle mouse button upon the icon to view the icon subviews menu, and selecting **Ext Port Config**
- selecting **Port Config** from the Basic Ether Icon Subviews menu and clicking the Extended Port Config button.

The view and its fields are described below:

Model Name
Provides the application name.

Extended Port Table

This portion of the view displays the Extended Port Table.

Slot
The relative slot number in an enclosure starting with 1.

Port
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Auto Partition
Indicates whether a port has been automatically partitioned by the hub's auto-partition protection; this happens if a port signals continuous collision or there are greater than 30 consectutive collisions on the port.

Senses
The number of times carrier sense was on when sampled every 10 milliseconds.

Custom Cnt#
A counter that is incremented by one of the following occurences on this port: collision, late collision, carrier too long, bad bit rate, missing SFD, short event, non-collided packet, or auto partition.

Ext Length Media
The administrative state of the 10BaseT link integrity function. When locked, the port functions like an ASP-300. Note that this does not apply to an AUI port.

Link Test
The result of the latest link integrity test. Note that this does not apply to an AUI port. Returns Failed, Passed, or notApplicable.

Admin State
The administrative state of the 10BaseT link integrity function. When locked, the port functions like an ASP-300. Note that this does not apply to an AUI port.

Polarity
Indicates if the transmit/receive polarity of the twisted pair port was determined to be incorrect and then automatically corrected. Note that this does not apply to an AUI port.

Type
Indicates the type of interface between the (physical) port to the physical medium.

Clicking on an entry in the Ethernet Extended Port Table opens the Port Configuration Table.

Port Configuration View

The fields for this view are similar to the fields in the Ethernet Basic Port View. Link Integrity Tests allow you to toggle **on** or **off** the result of the latest link integrity test.

EWA Monitor Application

The EWA (exponentially weighted average) Monitor Application supports the following additional sub-application views:

- Ethernet Monitor View
- Monitor Context Information View
- Ethernet Context View
- Context Information View

These views are described in the following sections:

Ethernet Monitor Table

You can access the Ethernet Monitor Table by selecting Monitor Table from the EWA Monitor Icon Subviews menu.The Monitor Table displays the following fields, described below:

Model Name
Displays the name for the hub device being modeled.

Mon ID
The relative slot number in an enclosure, starting with 1 (as numbered on the enclosure).

Observed Object
The observed object type.

Mon Type
A monitor is applied to a counter or a gauge and the method of computing Estimate Of Mean depends on the type of monitor.

Admin State
When this object's value is changed to lock, monitoring is suspended and the operational state is set to reserved; when the value is changed to unlock, the operational state becomes active and monitoring resumes.

Oper State
The state of an instance of a monitor as represented by a row in this table.

Monitor Context Information View

You may access the Monitor Context Information View by double-clicking any column entry in the Ethernet Monitor Table. The fields for this view are described below:

Model Name
An attribute that uniquely identifies the monitor instance within the monitor context.

Monitor Type
A monitor is applied to a counter or a gauge and the method of computing Estimate Of Mean depends on the type of monitor.

Admin State
When this object's value is changed to lock, monitoring is suspended and the operational state is set to reserved; when the value is changed to unlock, the operational state becomes active and monitoring resumes. This object assumes a default value of lock whenever an object is initialized; this allows initialization objects to be either set or reset.

Oper State
The state of an instance of a monitor as represented by a row in this table. If the state is notInUse, then the row is available.

Estimate Of Mean
A weighted average computed using the exponentially weighted moving average (EWMA). This attribute may be set or reset while the ewmaMmAdministrative state is lock.

Estimate Of Variance
An estimate of the variance of Estimate Of Mean calculated by using a different equation that gives the effect of exponential weighting.

MovingTime Period
This attribute provides a value that is greater than or equal to and in the same units as Granularity Period. It is a constant used in the calculation of the EWMA.

Granularity Period
This object is used to specify the period between observations of the observed object. The unit of time may be seconds, minutes, hours, or days. Its value must be greater than zero.

Time Unit
Indicates the units in which ewmaMmMovingTimePeriod and ewmaMmGranularityPeriod are expressed, for example, seconds, minutes, hours, or days. An implementation may restrict the value of this object to seconds only.

Thold Error1
This attribute contains an error threshold level associated with the Estimate Of Mean. It must be initialized before the object is unlocked and may later be modified if the object has been locked.

Thold Clear1
Contains a clear threshold level which is compared against Estimate Of Mean. It must be initialized before the object is unlocked and may later be modified after the object has been locked.

Thold Action1
Specifies the action or actions to be taken when ewmaEstimateOfMean passes either Thold Error1 or Thold Clear1.

Observed Object
The object identifier of the object to which this monitor instance is applied. It consists of the object identifier that specifies the object's type, followed by components specifying the object's instance.

Threshold Pair States
The current clear/error states of a monitor's two threshold pairs. The default value is clear1Clear2(1).

Unlock Error
An error detected when the monitor was unlocked.

Observed Object Type
The observed object type. This value plus the Monitor Context and Observed Port values specify the particular observed object.

Observed Port
If the observed object is related to a card's port, then this object designates that port; otherwise this object's value is notApplicable.

CounterTminusDT
This attribute is used in calculating counter differences for wrap counters. It contains the value of the counter from the previous observation. This value must be initialized when the monitor is unlocked.

Derived Gauge
Table 4-4 describes the different states for the Derived Gauge.

Table 4-4. Derived Gauge Table 4-4e States

Monitor Type	Observer Object	Description
valueMonitor	Last	Contains the last observed value of the observed object.
meanMonitor	Guage	Equal to the last observed value of the observed object.
meanMonitor	Counter	The difference between the two latest successively observed values of the observed object.
deltaMonitor	Counter or Gauge	The difference between the two latest successively observed values of the observed object.

Thold Error2
A monitor sends this trap at the time it makes an observation if Estimate of Mean has passed Thold Error2, while Thold Action2 indicates that this trap should be sent.

Thold Clear2
A monitor sends this trap at the time it makes an observation if Estimate Of Mean has passed Thold Clear2, while Thold Action2 indicates that this trap should be sent.

Thold Action2
Specifies the action or actions to be taken when Estimate Of Mean passes either Thold Error2 or Thold Clear2.

Ethernet Context Table

You can access the Ethernet Context Table by selecting **Context Table** from the EWA Monitor Icon Subviews menu.The Context Table displays the following fields:

Model Name
Displays the name for the hub device being modeled.

Monitor Context
A monitor is applied to a counter or a gauge and the method of computing Estimate Of Mean depends on the type of monitor.

Next Available Monitor
The next available row in this table. The value returned is the Id of the next available row in the table. The definition of next available is determined by the agent. If no more unused rows are available then the value returned is 0.

Global Actions
All the objects in this table are saved in the active area of persistent (flash) memory. This table is initialized from these saved values should power be lost and restored.

Context Information View

You may access the Context Information View by double-clicking any column entry in the Ethernet Context Table. The fields for this view are described below:

Model Name
Displays the name for the hub device being modeled.

Monitor Context
A monitor is applied to a counter or a gauge and the method of computing Estimate Of Mean depends on the type of monitor.

Next Available Monitor
The next available row in this table. The value returned is the Id of the next available row in the table. The definition of next available is determined by the agent. If no more unused rows are available then the value returned is 0.

Global Actions
All the objects in this table are saved in the active area of persistent (flash) memory. This table is initialized from these saved values should power be lost and restored.

Monitor Ether Application

The Basic Ether Application supports the following additional sub-application views:

- Cluster Diagnostics View
- Address Tracking Table View
- Port Performance View
- Port Diagnostics Table

These views are described in the following sections:

Cluster Diagnostics View

You can access the Cluster Diagnostics View by selecting **Cluster Diagnost** from the Monitor Ether icon subviews menu. This view provides two tables: the Cluster Hub Diagnostic Table and the Cluster Group Diagnostic View. The fields for these tables are described below:

Cluster Hub Diagnostic Table

The Cluster Hub Diagnostic Table provides hub diagnostic statistics. The fields for this table are described below.

Hub Id
The identifier for this Ungermann Bass Hub.

Tx Collisions
Counts the number of times any port in this group had a transmit collision.

Cluster Group Diagnostic Table

The Cluster Group Diagnostic Table provides collision statistics and includes a Print button. The fields for this table are described below:

Group
The relative slot number in an enclosure starting with 1.

Collisions
Counts the number of times any port in this group had a transmit collision. Simultaneous collisions on multiple ports are counted as only one group collision.

Late Collisions
Counts the number of times any port in this group had transmit and receive active concurrently but late. Simultaneous late collisions on multiple ports are counted as only one group late collision.

Address Tracking Table

You can access the Address Table View by clicking Address Tracking from the Monitor Ether icon subviews menu. The fields for this table are described below:

Slot
The relative slot number in an enclosure starting with 1.

Port
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

MAC Address
The physical address for this hub.

Changes
The relative number of changes for this port.

Port Diagnostic Table

The fields for this table are described below.

Slot
The relative slot number in an enclosure starting with 1.

Port
The relative slot number in an enclosure starting with 1.

Bad Pkts
The number of times that a packet has been received with the transmission frequency (data rate) detectably out of spec. This count may, but does not have to, include packets that were still able to be repeated.

A sum of hmMonPortFrameCheckSeqErrors, hmMonPortFramesTooLong, and hmMonPortAlignmentErrors.

Short
A carrier-sense event that lasts longer than 0 microseconds but less than or equal to 7.4 microseconds increments this counter. A carrier-sense event that lasts longer than 7.4 but less than 8.2 microseconds increments either this counter or the hmMonPortRunts counter, but not both.

Runts
A carrier-sense event that lasts longer than 7.4 microseconds but less than 8.2 microseconds increments either the hmMonPortShortEvents counter or this counter, but not both. A carrier-sense event that lasts at least 8.2 but not longer than 63.2 microseconds increments this counter. A carrier-sense event that does not result from a collision and that lasts longer than 63.2 but less than 64.0 microseconds increments either this counter or the hmMonPortLateCollisions counter, but not both.

FCS Errors
The number of frames that are an integral number of octets and do not pass the Frame Check Sequence (FCS) Error check.

Alignment
The number of frames received on this port that are not an integral number of octets in length.

Too Longs
The number of frames received that are greater than 1518 octets.

OOR
The number of frames with a length field whose value is greater than the maximum value allowed for LLC frames (1500 or 5DC hex). This could be used to count Ethernet frames (length fields whose values are 600 hex or greater).

Collisions
The number of times this port had transmit and receive active concurrently. Note that the sum of all port collisions in a group is not necessarily ubHmMonGroupCollisions.

Late Collisions
The number of times this port detects a collision later than 512 bit times and relays it into the transmitted packet.

Late Col
Counts the number of times any port in this group had transmit and receive action concurrently but late. Simultaneous late collisions on multiple ports are counted as only one group late collision.

AutoPart.
Indicates whether a port has been automatically partitioned by the hub's auto-partition protection; this happens if a port signals continuous collision or there are greater than 30 consectutive collisions on the port.

DR Mismatch
The number of times a packet has been received with the transmission frequency (data rate) detectably out of spec. This count may include repeated packets.

SFD Errors
The number of times this port detects a double-zero before a start-frame delimiter.

Port Performance View

You can open the Port Performance View by selecting **Performance** from the Monitor Ether Icon Subviews menu, or by selecting the Monitor Ether icon, opening the Views menu, and selecting **Performance** from the Icon Subviews menu. The view and its fields are described below:

Slot
The relative slot number in an enclosure starting with 1.

Port
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Rx Frames
The number of frames of legal length that have not been corrupted while being received. It is equal to the sum of frames received ok and those received with only an out-of-range length error.

Rx Octets
The number of data and padding octets contained in frames counted by Rx Frames. This does not count octets in a frame used in the preamble and the SFD of a packet.

Total Octets
The total of all octets contained in frames counted by Rx Frames and octets in the frame used in the preamble and the SFD of a packet.

Other Ethernet Applications

The new Ethernet Concentrator (Ether Conc) applications are:

- Ether Conc
- Ether Conc 10bt
- Ether Conc Fib

The supported cards for the Ethernet are the ECM -300, -900, -800, and -310.

Ether Conc Application

The Ether Conc Application supports the following additional views:

- Ethernet Port Table Entry View
- Ethernet Concentrator Table Entry View
- Ethernet Concentrator View
- Port Table

These views are described in the following sections:

Ethernet Concentrator Table View

You can open the Ethernet Concentrator View by selecting **Concentrator** from the Ether Conc Icon Subviews menu, or by highlighting the UB_EC_App icon, opening the Views menu, and selecting **Concentrator** from the Icon Subviews menu. This view allows you to print the results from the Ethernet Concentrator Table to a printer or a file. The table's fields are described below.

Model Name
The model name for this concentrator.

Slot
The slot number for this port.

Carrier
The number of times the carrier was sensed when sampled every 2 milliseconds.

Fan Status
The status of the Temp/Flex mount adaptor fan. This function applies to the ASM 800 fiber EC only.

Ethernet Concentrator Table Entry View

You can open the Ethernet Port Table Entry View by clicking any table entry from the Ethernet Port Table. The fields for this view are described below:

Model Name
The model name for this concentrator.

Slot
The slot number for this port.

Carrier Counter
The number of times the carrier was sensed when sampled every 2 milliseconds.

Fan Status
The status of the Temp/Flex mount adaptor fan. This function applies to the ASM 800 fiber EC only.

Ethernet Ports Table View

You can open the Ethernet Ports Table View by selecting Ports from the Ether Conc Icon Subviews menu, or by highlighting the UB_EC_App icon, opening the Views menu, and selecting **Ports** from the Icon Subviews menu.

Slot
The relative slot, starting from 1, containing this card.

Port
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Management Status
The management status of this Ethernet port.

Admin Status
The administrative state of the 10BaseT link integrity function.

Counter
The number of times the carrier was sensed when sampled every 1 millisecond.

Ethernet Port Table Entry View

You can open the Ethernet Port Table Entry View by double-clicking any entry from the Ethernet Port Table. The fields for this view are described below:

Model Name
The model name for this concentrator.

Slot
The slot number for this port.

Port ID
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Management Status
Choices are notApplicable, unlocked, and locked; the default is notApplicable.

Admin Status
The administrative state of a port; when the unlocked action is requested, a BEGIN is exerted upon the auto-partition state machine. States are notApplicable, unlocked, and locked.

Carrier Counter
The number of times the carrier was sensed when sampled every 2 milliseconds. This attribute applies only in tier 1.

Ether Conc 10bt Application

The Ether conc 10bt application supports the following additional views:

- Ethernet 10BaseT Port Table
- Ethernet 10Base T Port Table Entry

These views provide similar informational fields. These views are described below:

Ethernet 10BT Table

The Ethernet10BT Table allows you to sort, find, or update the view. The fields for this view and the Ethernet 10Base T Port Table Entry View are described below:

Ethernet 10Base T Port Table Entry

The Ethernet 10Base T Port Table Entry View allows you to change the fields in the Ethernet 10Base T Port Table. To access this view, double-click on any entry in the Ethernet10BT Table.

Model Name
The model name for this concentrator.

Slot
The slot number for this port.

Port Id
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

Link Test Status
The result of the link integrity test. The Link Test Status types and descriptions are listed in Table 4-5.

Link Test Action
A request to unlock the link integrity test, which is a continuous test. The Link Test Status types and descriptions are listed in Table 4-5.

Table 4-5. Link Test Status Descriptions

Link Test Status	Description
testLocked	10BaseT Link integrity test (Administrativelylocked)
testFailed	10BaseT Link integrity test failed
testPassed	10BaseT Link integrity test passed

Ether Conc Fib Application

The Ether conc 10bt application supports the following application-specific views:

- Ethernet Fiber Port Table View
- Ethernet Fiber Port Table Entry View.

These views provide similar informational fields. These views are described below:

Ethernet Fiber Port Table View

You can open the Ethernet Fiber Table View by selecting port-table from the Ether Conc Fib Icon Subviews menu, or by highlighting the Ether Conc Fib icon, opening the Views menu, and selecting **Port Table** from the Icon Subviews menu. This view and the Ethernet Fiber Port Table Entry View provide similar informational fields; the Ethernet Fiber Port Table View allows you to sort, find, or update the view. The fields for both views are described below.

Ethernet Fiber Port Table Entry View

You can open the Ethernet Fiber Port Table Entry View by clicking on any entry in the Port Table. The fields for both views are described below.

Model Name
The model name for this concentrator.

Slot
The slot number for this port.

Port Id
The relative position of a port within a card starting with 1. The AUI port identifier is 13.

(Source) MAC Address
The physical address for this port.

Time Since Last Packet
A value representing the time since the last attempt to send packets.

Chapter 5

Hub Applications

What Is in This Chapter

This chapter provides a description of the hub-related applications.

This next section describes the hub-related applications and the following minor applications:

- Card + Hub
- CPU + RAM
- Ethernet MAC
- Ethernet Superv
- Net IF
- Transport

The fields for each view are described below:

Card + Hub App

The Card + Hub Application provides two additional application-specific views:

- Access/One Hub Configuration View
- Access/One Card Configuration View

These views and fields are described in detail in this chapter.

Access/One Hub Configuration View

This view provides the hub's configuration information. To open this view, complete any one of the following steps:

- Select **UB Hub Config** from the UBHubApp Icon Subviews menu
- Using the right mouse button, click on the UBHubApp icon and select **Hub Config** from the View Icon Subviews menu
- Highlight the UBHubApp icon and click **Hub Config** from the View Icon Subviews menu.

The fields for this view are described below:

Hub Name
The name of the Access/One enclosure.

Temperature Status
Indicates whether the temperature of at least one card in the enclosure is out of range.

MAC address
The supervisor's address for this Ungermann Bass hub enclosure.

IP Address
The IP address used to communicate with the SNMP agent in the Supervisor.

Power Supply Status
The power supply status of this hub. This field returns one of the following status conditions:

Table 5-1. Card + Hub App Power Supply Status Fields and Descriptions

Power Supply Status	Description
Normal	Normal power and both (power supplies for a fault tolerant power supply) power supplies are operative.
acPower Abnormal	AC power abnormal.
High Temp	The temperature of the unit is too high.
onePsModuleFailed	One module failed; normal DC power is being supplied, but one power supply module for a unit having fault tolerant power supplies has failed .
notApplicable	Not Applicable

Reset Action
When this internet object is SET to a value of requested, Reset All Cards, or ForceLoad, the hub resets, according to the specific request. Resetting locally sets the value of this internet object to not-requested. Initially its value is not-requested. The values for the hub reset action are listed in Table 5-2.

Table 5-2. Hub Reset Values

Hub Reset Action Value	Description
Not Requested	Not Requested.
Reset All Cards	Reset all except Supervisor.
Force Load	Load zero slot enclosure.

Serial Number
Indicates this Ungermann Bass hub's serial number.

Air Flow Status
Indicates normal airflow inside the enclosure. Applies only to enclosures with an Air Flow Sensor (AFS) installed and a supervisor capable of detecting the signal from this sensor (currently only the ASM-710 and ASM-760). Values are n/a for not applicable, normal airflow, and abnormal airflow.

Poll Time
The time in tenths of seconds between polls of hub cards by the supervisor.

Hub Type
The number of slots in the enclosure, followed by the type of hub enclosure.

Access/One Card Configuration View

This view provides the card's configuration information in table format. Each row selection in the Board Table provides the card's relative position in the enclosure starting at 1. You may open the view by completing one of the following steps:

- Select **UB Card Config** from the UBHubApp Icon Subviews menu
- Using the right mouse button, click on the UBHubApp icon and select **Card Config** from the View Icon Subviews menu
- Highlight the UBHubApp icon and click **Card Config** from the View Icon Subviews menu.

The view fields for this view are described below:

Slot
The card's relative position in the enclosure starting at 1.

Type
The card type.

Status
Provides module states during power-on diagnostics. The module states are described in Table 5-3.

Table 5-3. Module State Descriptions

State	Description
notApplicable	Unknown.
initializing	Initializing.
power on diagnostics	Running power on diagnostics.
debug mode	Module is in debug mode.
online diagnostics	Online diagnostics in progress.
module fault	This module is faulty.
net booting	Network booting requested.
net loading	Network downloading.
cbloading	Supervisor is loading configuration data usintg the control bus using the eontrol bus interface.
up	Intelligent module is up.
standby	The module is in standby state.
software disabled	The software is disabled.
reset	Module is being reset.
inactive	This concentrator is inactive.
active	This non-intelligent concentrator is active.
not responding	Module is not reacting to supervisor polls.

Access/One Hub Board Status View

You can double-click any column entry in the Access/One Card Configuration Table to view the Access /One Board Status View. The fields for this view are described below:

Model Name
The application type.

Slot
The card's relative position in the enclosure starting at 1.

Board Type
The board type for this enclosure.

Operational Status
States the module goes through when doing power-on diagnostics.

Management Status
The management status of a module's Ethernet bus interface.

Ethernet Admin Status
The administrative status of a module's Ethernet Bus interface action. Table 5-4 describes the Ethernet Admin Status types.

Table 5-4. Ethernet Admin Status Descriptions

Administrative Status	Description
notApplicable	Not Applicable
unlock	Administratively unlocked; module's Ethernet Bus interface is enabled.
lock	Administratively locked; module is segmented from enclosure's Ethernet Bus interface.
lockedByJumper	Values of this attribute cannot be set.

Ethernet Bus Mgmt Status
The management status of a module's Ethernet bus interface. Table 5-5 describes the Ethernet Management Status types.

Table 5-5. Management Status Types

Management Status Types	Description
notApplicable	Not Applicable
unlocked	Ethernet Bus interface unlocked and enabled.
locked	Module locked and either enabled or disabled.
notResponding	Module not responding to supervisor polls and unlocked.
autosegmented	Ethernet Bus autosegmented and unlocked.

Table 5-5. Management Status Types (Continued)

hardwareFault	FAULTY: hardware fault and unlocked.
lockedByJumper	LOCKED BY JUMPER: applies to ASM320 only.

Temperature Status
An indication whether the card's temperature is too high.

Board Up Time
The elapsed time since the module started operating.

Number of Ports
The number of ports on a card.

Number of Resets
The number of times a module has been reset.

Reset Configuration

Click this button to access the Access/One Board Configurastion View which is described below.

Access/One Hub Board Configuration View

The fields for the Access/One Hub Board Configuration View are described below:

Fault Action
Supervisor resets the card.

Reset Retries
The maximum number of times a reset is attempted when Fault Action is set to reset.

Power Up Mode
The actions taken by the module immediately after power up.

Board Reset Action
When this internet-object is SET to one of the request values, the card resets, and after resetting retains the value that was SET. Initially its value is not-requested. When this object is SET to resetSuprvAndUpdateFlashProm, the card resets and gets operational software download through Network and then updates the Flash Prom with new Image.

CPU + RAM Application

The CPU + Ram Application provides the Hub Debug View as the only additional application-specific view. You may access the Hub Debug View using either of the following methods:

- Select **Hub Debug** from the CPU + RAM Icon Subviews menu
- Once the CPU + RAM icon is highlighted, select **Hub Debug** from the View Icon Subviews menu to open the Hub Debug View.

The fields for the CPU + Ram Application are described below:

Model Name
Provides the model name.

Network Address
Provides the Ungermann Bass hub IP address.

The Board Diagnostic Table is provided in this view and is described below:

Slot
The relative slot position of a card starting at 1.

Message
A text message describing a power-on diagnostic state. Possible states are n/a (not available), noFault, parityErr, networkErr, diagErr, and operationErr.

Fault
Faults detected by the module.

Halt Reason
The last specific halt reason detected by the card.

To access additional debug register statistics, click on any column in this table.

Access/One Board Debug View

You may access similar Access/One information by double-clicking on any column entry in the Access/One Hub Debug View. An additional field is described below:

Debug Registers
A set of 14 80186 registers used for debugging purposes. These are CS, IP, FLAG, AX, BX, CX, DX, SP, BP, SI, DI, DS, ES, and SS.

Ethernet MAC Application

The Ethernet MAC Application displays one application-specific view. The Ethernet Bus Diagnostics View provides additional Intelligent Module Ethernet (IMEN) Datalink information for the Ethernet Bus interface. You may access this view by either of the following methods:

- Click **Ethernet Bus** in the Ethernet MAC icon Subviews menu to access the Ethernet Bus Diagnostics View
- Once the Ethernet MAC icon is highlighted, select **Ethernet Bus** from the View Icon Subviews menu to open the Ethernet Bus View.

Ethernet Bus Diagnostics View

The fields for the Ethernet Bus Diagnostics View are described below:

Model Name
Provides the application name.

Network Address
Provides the Ungermann Bass hub IP address.

Additionally, the IMEN Datalink Table is provided in this view, and its fields are described below:

Slot
The relative position of the card in the enclosure starting from 1.

Transmit
The total number of packets transmitted.

Receive
The total number of packets received.

CRC Errors
The number of packets received with CRC errors.

Collisions
The total number of packets transmitted with collision(s) detected.

Click any statistic in the IMEN Datalink Table to access the Ethernet Bus Diagnostics View.

Ethernet Bus Diagnostics

The next Ethernet Bus Diagnostics Bar Chart provides access buttons for transmit, receive, CRC error, and collision information. Each button opens a 2-axis rate graph for the corresponding set of statistics.

Ethernet Superv Application

The Ethernet Superv Application provides one additional application-specific view; the Supervisor View. The fields for this view are described below:

Supervisor View

You can access the Supervisor View by following these steps:

- Select **Configuration** from the UB_Ensup_App Icon Subviews menu.
- Once the icon UB_Ensup_App icon is highlighted, select **Configuration** from the View Icon Subviews menu to open the Supervisor View.

The fields for this view are described below:

Static Net Config
The configured status of the interface between the net module(s) and the backbone. Table 5-6 describes the static net configuration states.

Table 5-6. Static Net Config States

Static Net Config States	Description
netAndSupDirect	Netcard+Supervisor Direct: Supervisor uses its Net Interface, all other cards use Net Card.
supOnly	All cards use Supervisor's Net Interface.
netOnly	All cards use Net Card.
supElseBridge	All cards use ETHERNET BUS interface to .3 bridge; if the bridge is down, then use the supervisor.

Dynamic Net Status
The dynamically changed status of the interface between the net module(s) and the backbone. States are notApplicable, netAndSupDirect, supPOnly, and netOrSupLoopback.

Net Bridge Slot
The relative group slot containing a local bridge by which the modules access the backbone; relevant only if the value of ensupStaticNetConfig is “sup-bridge.”

Carrier Counter
The number of times carrier sense is on when sampled every 2 milliseconds. This field is used in conjunction with algUpTime.

Net Utilization
The percentage of time carrier sense is on; the percentage is expressed to the nearest tenth.

Net Util Threshold
The threshold for ensupNetUtilization; it sends a trap when exceeded. Percentage utilization to the nearest whole integer.

Net Util Int
An integer representing Net Utilization.

Net IF Application

The Net IF Application provides the additional Backbone Information View.

Access/One Backbone Information View

Select **Backbone Info** from the Net IF application icon Subviews menu, or once the icon is highlighted, select **Backbone Info** from the View Icon Subviews menu to open the Backbone Information View. The fields for this view are described below:

Model Name
Provides the application name.

Network Address
Provides the Ungermann Bass hub IP address.

Slot
The relative slot starting from 1 containing this slot.

Type
The type of backbone to which the NET interface is attached.

Interface Status
The interface fault at various points between the module and the backbone. Status types are notApplicable, internal, auiBad, mdiBad, bonebad, bufferedRepeaterBad, and normal.

Status
The status of the interface or interfaces to the backbone. Status types are notApplicable, netOnly, loopback, bridgeOnly, standby, and netAndSupDirect.

Transport Application

The Transport application provides access to the Transport Layer View. The field statistics are described below:

Transport Layer View

Slot
The relative slot position of a card starting at 1.

IP Address
The card's IP address. This applies only to TCP/IP.

NIU Name
The card's NIU name. This field only applies to cards using the ISO/OSI protocol.

Protocol
The type of transport protocol used by the module.

Poll Status
Indicates whether the module has responded to supervisor polling over Ethernet.

Chapter 6

Token Ring and TR Tier Applications

What Is in This Chapter

This chapter describes the Token Ring and TR Tier Applications for Ungermann Bass Hubs.

Token Ring Applications

The Ungermann Bass Hubs support Token Ring applications, which are described below.

- Token Ring (TR) App
- TR Tier App

These applications and the tables accessed by the views are described below:

Token Ring Concentrator Card Information View

The Token Ring Concentrator Card Information View provides two pie charts that give statistics for Frame Throughput and Frame Errors. The statistics are described in Table 6-1 and Table 6-2 below:

Table 6-1. Frame Throughput Statistics

Statistics	Description
Frames Copied	The count of frames successfully received into this concentrator's receive buffers by the MAC in this concentrator. This count includes all successfully received SMT and LLC frames.
Frames Received	The count of frames received and repeated on the network by the MAC in this concentrator.
Frames Transmitted	The count of frames transmitted by the MAC in this concentrator. It includes all transmitted SMT and LLC frames.

Table 6-2. Frame Error Statistics

Statistic	Description
Frames In Error	The count of frames with errors received by the MAC in this concentrator. A frame with errors may be one with a bad checksum value.
Frames Lost	The count of frames that are not completely received by the MAC in this concentrator. A frame may be malformed or incomplete in the event of a rin-op transition on the network.
PMD Config Errors	The count of configuration errors in the PMD of this concentrator.

Frames Tx Rate Table

You can click on any table entry to access the Frames Tx Rate Table, which provides information pertaining to frames transmitted.

TR Application

The TR application provides the application-specific Token Ring Port Table View. This view provides token ring configuration information.

Token Ring Port Table View

- Select **Port Table** from the highlighted UB_TR_App icon Subviews menu.
- Once the icon is highlighted, select **Port Table** from the View Icon Subviews menu to open the Token Ring Port Table View.

The fields for this view are described below:

Model Name
Provides the application name.

Slot
The relative slot starting from 1 containing the card.

Port
The relative porton the card starting from 1.

Admin Status
The administrative status of a token ring port. It reflects only administrative status.

Operator Status
The operational status of a token ring port.

TR Tier Application

The TR Tier application provides three application-specific menu choices. You can access the respective Token Ring tables by clicking on the Icon Subview menu selections listed below:

- Token Ring Card Table
- Token Ring Tier1
- Token Ring Tier 23

Each Token Ring table is described below:

Token Ring Card Table

The Token Ring Card Table View provides information about the Token Ring concentrator card and can be accessed by selecting **Card Info** from the highlighted UB_TRTier_App application icon Subviews menu, or once the icon is highlighted, select **Card Info** from the View Icon Subviews menu to open the Token Ring Concentrator Card Information View.

Model Name
Provides the application name.

Slot
Contains the relative position of a concentrator within an enclosure starting at 1.

(Board) Type
A string of ASCII characters representing the concentrator's product identifier (for example, a name identifying an enumeration of a1gProductType). Examples are "trc-410-1" and "trc-410-2."

Version
A string that is unique for a specific manufacturer's product id that identifies a concentrator's hardware and firmware versions.

The two octets are non-negative integers with values from 0 through 255. If a version does not apply, then the version number is zero. One is the first applicable version number.

The first octet is the hardware version and the second is the firmware version.

Oper State
The operational state of the ring. The states are BeaconDetectInProgress, Normal, and NotApplicable.

Tier
Indicates the management level of functionality (tier) of this concentrator.

Ring Speed
The current concentrator operating speed of either 4 or 16 Mbps. Each concentrator in a ring must be configured with the same value of this attribute.

Up Time
Represents system uptime.

You can access the Token Ring Concentrator Card Information View for additional concentrator card information by clicking any column entry in this table.

Token Ring Concentrator Card Information View

The Token Ring Concentrator Card Information View provides additional concentrator card information; the fields not seen in the Token Ring Card Table are described below:

Ring Number
The ring number assigned when configuring a bridge.

Active Monitor Port
The relative port number of the active monitor for this ring. Its value is 0 if the active monitor is not attached to any port on this concentrator.

Auto Partition Enable Timer
Indicates the amount of time to wait until re-enabling a beacon detected port. The default value is 0 seconds.

Auto Partition Hold Timer
Indicates the amount of wait time until starting the beacon detect process. The default value is 0 seconds.

Auto Partition Retries
Indicates the number of times a port can be temporarily locked by the beacon detect process prior to being permanently locked. The default value is 3.

Reset Durable User Attributes
A request to copy the default values stored in durable memory to the User Durable attributes also in durable memory. User attributes effected are Ring Speed, Allow Insert, Forced Insert, Auto Partition Hold Timer, Auto Partition Retries, and Auto Partition Enable Timer. A description of the types of the Reset Durable User Attributes is listed in Table 6-3.

Table 6-3. Reset Durable User Attributes Types and Descriptions

Attributes Type	Descriptions
resetComplete	Reset complete or never requested.
setToDefaults	User durable attributes reset to origional default values.

Token Ring Tier 1 Table

The Token Ring Tier1 Table View provides information about the Token Ring concentrator card and can be accessed by selecting **Tier1 Port Info** from the TR Tier application Icon Subviews menu. This view also provides the Token Ring Tier1 Table fields.

Model Name
Provides the application name.

Slot
Contains the relative slot within the hub enclosure starting at 1.

Port
The relative port on the card starting at 1. Ports rs1-12 are ring station ports; rs13 is the expansion in port; and rs14 is the expansion out port.

Insertion State
The end result of the field states AllowInsert, ForcedInsert, and PhantomState. States are notApplicable, inserted, and bypassed.

Allow Insert
An action that allows a port to insert onto its ring if both phantom voltages are present. States are notApplicable, not Allowed, and Allowed.

Forced Insert
The resulting condition if forcedInsertion forces a port to insert onto its ring, regardless of whether phantom voltage or other conditions are detected. States are notApplicable, noForcedInsertion, and forcedInsertion.

Phantom State
The status of the phantom voltage provided by the port. States are notApplicable, phantomPresent, phantomAbsent, and wiringFault.

You may click any column entry to open the Token Ring Information View. This view provides similar fields to the Tier1 Table, but allows you to change the Allow Insert and Forced Insert fields.

Token Ring Port Information View

You may access the Token Ring Port Information View by clicking any column entry in the Tier 2,3 Configuration Table.

Token Ring Tier 2,3 Table

The Token Ring Tier2,3 Configuration Table provides information about the Token Ring concentrator card and can be accessed by selecting **Tier 2,3 Port Info** from the TR Tier application Icon Subviews menu. The Token Ring Tier 2, 3 Table fields are described below:

Slot
A value representing the slot position of the module in the enclosure starting at 1.

Port
The relative port on the card starting at 1.

Operational Status
Indicates if a hard failure has occurred on a port, has been detected through the beaconing procedure, and the offending port subsequently bypassed in the ring.

Beacon Detects
The number of beacon detects that have resulted in this port being partitioned or removed from its ring.

Last Source Address
Address of previously attached node.

Last Changed
Time since the value of Last Source Address last changed.

You can double-click any column entry to access the Token Ring Port Information View.

Token Ring Port Information View

The Token Ring Port Diagnostics View includes similar fields as the Tier 2,3 Configuration View and the following additional fields:

Insertion State
The end result of the field states AllowInsert, ForcedInsert, and PhantomState.

Allow Insert
An action that allows an rs port to insert onto its ring if both phantom voltages are present.

Forced Insert
The resulting condition if forcedInsertion forces an RS port to insert onto its ring, regardless of whether phantom voltage or other conditions are detected.

Phantom State
States are PhantomPresent and PhantomAbsent.

Additional access buttons for diagnostic, receive, and transmit statistics display near the botom of this view. Each performance view displays a series of bar graphs which provides additional port statistics. The summary contains the following buttons:

Diagnostic

Click this button to display the Port Diagnostics View.

Receive

Click this button to display the Receive Performance View.

Transmit

Click this button to display the Port Transmit Performance View.

Chapter 7

FDDI Application

What Is in This Chapter

This chapter describes the FDDI Application for Ungermann Bass Hubs.

FDDI Application

The FDDI Application provides two application-specific views, listed below:

- FDDI Port Configuration View
- FDDI Card Performance View

You can open additional informational views by clicking on column entries within the FDDI Port Configuration or Card Performance Tables. The FDDI Port Configuration and Card Performance Views are discussed below:

FDDI Port Configuration View

Select **Port Config** from the FDDI Application icon Subviews menu to open the FDDI Port Configuration View, which includes the Configuration Table with FDDI port statistics.

Slot
The FDDI port slot ID.

Port
The type that this port identifies itself as, during R_Val(1,2).

Type
The type that this port identifies itself as, during PC_Signalling.

Neighbor Type
The type of remote port that is determined in PC Signalling in R_Val (1,2).

PMD Type
The Physical Media Dependent entity type. This is the lower sublayer of the Physical Layer.

LEM Count
The aggregate-link error monitor error count set to zero only on station power-up.

LER Average
A long term average link error rate reported as the absolute value of the exponent of the estimate.

The Configuration Table wraps around under the heading **Configuration Table (Continued)**. The fields are described below:

Slot
The FDDI port slot ID.

Port
The FDDI port ID.

Insert PS
A value that indicates the desired association(s) of the port with a station path. The primary path is the default. The value of the secondary is only meaningful for S(slave) or M(master) port PC-types.

Link State
An indication of the link state of this port.

Link Test Status
An indication of the connect state of this port.

Connect State
An indication of the connect state of this port. This gives a higher level view of the state of the connection by grouping PCM states and the PC-Withold condition.

Port State
An indication of the FDDI port state.

FDDI Card Performance View

The Card Performance selection in the FDDI Application Icon Subviews menu provides access to the FDDI Card Configuration View. Select **Card Performance** under the FDDI Icon Subviews menu to open the FDDI Card Performance View, or you can open the Views menu and select **Card Performance** from the Icon Subviews menu. The Card Performance View contains the following fields:

Slot
The relative slot starting from 1 containing this card.

Frames Tx
The count of frames transmitted by the MAC in this concentrator. It includes all transmitted SMT and LLC frames.

Frames Rc
The count of frames received and repeated on the network by the MAC in this concentrator.

Frames Copied
The count of frames successfully received into this concentrator's receive buffers by the MAC in this concentrator. This count includes all successfully received SMT and LLC frames.

Frames Lost
The count of frames that are not completely received by the MAC in this concentrator. A frame may be malformed or incomplete in the event of a ring-op transition on the network.

Frame In Errors
The count of frames with errors received by the MAC in this concentrator. A frame with errors may be one with a bad checksum value.

PMD Conf Errors
The count of configuration errors in the PMD of this concentrator.

You can access additional informational fields in the FDDI Card Configuration Table by double-clicking any column entry in this table. The fields are described below:

FDDI Card Configuration Table

The FDDI Card Configuration Table provides the following fields:

Slot
The relative slot starting from 1 containing this card.

IP Address
The IP address for this concentrator.

Netmask
The subnet mask associated with the IP address ofthis concentrator. Its value is an IP address with all the network bits set to 1 and all the host bits set to 0.

Gateway Address
The IP address of the gateway which provides access to other IP networks.

Trap IP
The IP address of the management entity that will receive SNMP trap notifications.

Slot
The relative slot starting from 1 containing this card.

Prod Version
The first octet is the hardware version; the second octet is the firmware version.

Overall Status
Provides the overall status for this concentrator. States are notApplicable, noError, tempErrorMCB. tempErrorPHYL, and tempErrorPHYR.

RMT State
States are: notApplicable, isolated, nonOperational, ringOperational, detect, nonOperDuplicateMAC, sendingDirectedBeacon, and trace.

LeftPHY
A flag set when the left PHY card attached to this concentrator is enabled. Or, a flag cleared when the left PHY card attached to this concentrator is disabled.

RightPHY
A flag set when the right PHY card attached to this concentrator is enabled; O or, a flag cleared when the right PHY card attached to this concentrator is disabled.

Chapter 8

Other Applications

What Is in This Chapter

This chapter provides information for all other applications supported by the Ungermannn Bass hubs not covered in the previous Application View chapters.

Other Applications

The Ungermann Bass hubs support other applications, which are described below:

- Buffered Net
- Bridge App
- Trap App
- BootP
- Firmware

To access one of these applications, highlight the UBHubApp icon of choice, and select **Application** from the View Icon Subviews menu. Each application is discussed below:

Buffered Net Application

The Buffered Net Application provides one additional application-specific view: the Buffered Repeater Diagnostic View. This view's fields are discussed below:

Buffered Repeater Diagnostic Table

You may access the Buffered Repeater Diagnostics Table by clicking **Performance** from the Buffered Net App icon subviews menu. Click any column entry in columns 1-3 (Slot Interface, DLC Status, or CRC Errors) to access the Total Overview Graph View. Click any entry in all other columns to access the CRC Error Rate Graph, which provides a rate graph for the selected column entry.

The fields for the Total Overview Graph View and the Buffered Repeater Diagnostic View are similar and are described in the next section.

Buffered Repeater Diagnostics Graph View

The Buffered Repeater Diagnostics Graph View provides a line graph displaying statistics from a set of X-Y- coordinates. You may access the Buffered Repeater Diagnostics Graph View for a particular slot by clicking an entry in any of the first three columns. This view contains the following fields and buttons:

Slot
Provides the buffered repeater slot ID.

Interface
This updatable field provides the repeater interface type.

Status
This field provides the read-only status of the repeater.

CRC Errors

Click this button to access the CRC Error Rate Graph, which provides a line graph displaying statistics from a set of X-Y-coordinates measured in 0 to 100 errors.

Collisions

Click this button to access the Collision Rate Graph, which provides a line graph displaying statistics from a set of X-Y-coordinates measured in 0 to 1000 collisions.

Aborted

Click this button to access the Abortion Rate Graph, which provides a line graph displaying statistics from a set of X-Y-coordinates measured in 0 to 100 packets.

Short Packets

Click this button to access the Short Packets Rate Graph, which provides a line graph displaying statistics from a set of X-Y-coordinates measured in 0 to 100 packets.

Alignment

Click this button to access the Alignment Error Rate Graph, which provides a line graph displaying statistics from a set of X-Y- coordinates measured in 0 to 100 packets.

Overflows

Click this button to access the Overflow Error Rate Graph, which provides a line graph displaying statistics from a set of X-Y- coordinates measured in 0 to 100 packets.

Underflow

Click this button to access the Underflow Error Rate Graph, which provides a line graph displaying statistics from a set of X-Y- coordinates measured in 0 to 100 packets.

Bridge Application

The Bridge Application provides the application-specific Bridge Interface Table View. The fields for this view are described below:

Bridge Interface Table

The Bridge Interface Table contains the relative position of a card within an enclosure, plus the relative interface information. Additionally, this view allows you to print this information to a file. You can access the Bridge Interface Table by selecting **Interface Table** from the Bridge application icon subviews menu.

Double-click any table entry column to open another Bridge Interface Table field view. This view allows you to alter the interface fields; the fields for both Bridge Interface Table views are described below:

Slot
The relative slot starting from 1, containing this card.

MAC Address
The MAC address of the bridge's specific interface.

Id
The relative interface of this entry starting from 1.

Type
The type of bridge interface.

Status
Returns the status of this bridge.

Trap Application

The Trap App application additionally provides the application-specific Trap Subscription View. The fields for this view are described below:

Trap Subscription

The Trap Subscription Table View provides trap information. You can sort, find, update, or add entries from this view. You can access the Trap Subscription Table View by:

- Selecting **Subscription** from the highlighted Trap App application icon Subviews menu.
- Once the icon is highlighted, select **Subscription** from the View Icon Subviews menu.

Destination
The IP destination address identifying a manager subscribing to traps.

Community Name
The community string identifying a manager subscribing to traps.

Net Utilisation Threshold
Represents a percentage of the net trap threshold. You may change this field.

Authorisation Traps
You may change this field to Disabled or Enabled.

Instance
The destination IP address.

If you want to change Trap Subscription Table fields, double-click any table column entry to open the Trap Table Entry View. The Trap Table Entry View provides an additional field and is described below:

Trap Table Entry View

The Trap Table Entry View displays alterable Destination Address and Community Name fields. Additionally, you can Delete a field by selecting **Yes** or **No**.

Bootp Application

The Bootp application provides one application-specific Bootp Download Table, including Tftp (Trivial File Transfer Protocol) information.

Bootp Download Table

You may access the application-specific Bootp Download Table View by clicking **Download** from the Bootp application Icon Subviews menu. You can sort, find, or update entries from this view. The fields for this view are described below:

Slot
A value representing the card's relative position in the enclosure starting at 1.

Niu IP Address
The device's Niu IP address, used to communicate to the TFTP server in the IP network. This value is static and is only used during Supervisor to TFTP server communication.

Tftp Server
The address of the server used to download the operational and configuration files to the Supervisor.

Double-click on an entry in any column to access the Bootp Download View, which also provides informational fields.

Bootp Download View

You can alter the following fields in the Bootp Download View:

Slot
A value representing the card's relative position in the enclosure starting at 1.

Niu IP Address
The device's Niu IP address used to communicate to the TFTP server in the IP network.

Subnet Mask
The subnet mask used by this device to communicate to the TFTP server. This value is static and is used only during Supervisor to TFTP server comminication.

Default Gateway Address
The gateway IP address used by this device to communicate to the remote TFTP server which resides within another subnet net of the IP network. This value is static and is used only during Supervisor to TFTP server communication.

Primary Tftp Server Address
The IP address of the primary TFTP server used to download the operational files and configuration files to the Supervisor.

Backup Tftp Server Address
The backup or secondary TFTP server used to download the operational files and configuration files to the Supervisor. This backup TFTP server will be tried if the primary TFTP server does not respond to the Supervisor.

Boot Filename
This designated boot file is derived from the TFTP server. This very first file determines if the supervisor will update the boot code on the firmware, create an upload file on the TFTP host, and determine which files to download from the TFTP server.

Parms Save Action
This is the status of a request to save the BootP parameters into FLASH PROM.

Firmware Application

The firmware Application provides the Firmware Information Table as the only application-specific view.

Firmware Information Table

You may access the application-specific Firmware Information Table by clicking **Information** from the Firmware App application Icon Subviews menu. The fields for this view are described below:

Slot
A value representing the slot position of the module in the enclosure starting at 1.

Major Version
Represents the firmware revision level for tracking the primary release level.

Minor Version
Represents the firmware revision level for tracking the maintenance release level.

PROM Usage Counter
Represents the number of write cycles to the FLASH PROM. The FLASH PROMs used on UB products have an average life cycle of 1000 write cycles, after which the PROMs can no longer be written into.

Last Update Status
Represents the status of the last attempt to update the boot code on the FLASH PROM.

Operational S/W Source
Represents the status of the last successful download source that Supervisor received operational software from.

Chapter 9

Event and Alarm Messages

What Is in This Chapter

This chapter describes the types of events generated by Ungermann Bass Hub devices. Additionally, it notes if an event is also mapped to an identical alarm message and provides any probable cause messages corresponding to these alarms.

Events and alarms originate as generic Simple Network Management Protocol (SNMP) traps sent from the physical hub device. These traps, or solicited messages, are translated as SPECTRUM events and are displayed in the Event Log. For more information on specific traps generated by each device, refer to RFC 1066 which is available through the Internet system. Also refer to the MIB (Management Information Base) documentation for each specific hub.

For each event/alarm listed in this appendix the following information is included:

- The event code
- The event/alarm message
- Any probable cause message for the mapped alarm
- Any recommended actions

When variable data is inserted in a message, it is indicated by the following brackets {}.

Ungermann Bass Hub Events and Alarms

Table 9-1 lists the events and alarms supported by Ungermann Bass Hub devices.

Table 9-1. Events and Alarms

Event Message	Probable Cause Message
001b0001 Access/One hub model {m}: A card was inserted in slot {I 1}.	**Not applicable**
001b0002 Access/One hub model {m}: Card {I1} has been removed.	**Not applicable**
001b0003 Access/One hub model {m}: Card in slot {I 1} has become faulty. Its state changed to moduleFault.	**001b0003** The supervisor has detected a faulty card. The card has developed a hardware problem.
001b0004 Access/One hub model {m}: Card in slot {I 1} has not responded to a supervisor poll. Its state changed to 'notResponding'.	**001b0004** The card has developed a hardware problem.
001b0005 Access/One hub model {m}: Card in slot {I 1} has been reset. Its state changed to 'reset'.	**Not applicable**
001b0006 Access/One hub model {m}: Card in slot {I 1} has been put into debug mode. Its state changed to 'debugMode'.	**001b0006** 1) Manual intervention by the operator. 2)Automatic fault action as specified.
001b0007 Access/One hub model {m}: Card's {I 1} temperature has become too high. Its state changed to 'abnormal'.	**001b0007** 1) Defective Fan 2) Airflow obstruction. 3) Environment temperature too high.
001b0008 Access/One hub model {m}: The interface to the Ethernet bus of card {I 1} has been unlocked. Its state changed to 'unlock'.	**Not applicable**

Table 9-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
001b0009 Access/One hub model {m}: The interface to the Ethernet bus of card {I 1} has been locked. Its state changed to lock.	**Not applicable**
001b0016 Access/One hub model {m}: The status of the interface to the backbone has changed so that all modules (with the possible exception of the supervisor - when it is in direct mode) access the backbone through the card's net interface: a state change to standby has occurred.	**Not applicable**
001b0017 Access/One hub model {m}: The status of the interface to the backbone has changed so that there is no communication backbone through the card's net interface: a state change to active has occurred.	**Not applicable**
001b0018 Access/One hub model {m}: The status of the interface to the backbone has changed so that this card's net interface loops back traffic directed to the backbone, while other (possible) net interface's status becomes standby: a state change to loopback has occurred.	**Not applicable**
001b0019 Access/One hub model {m}: An internal error at the net interface has been detected: its state changed to netFault-internal.	**001b0019** 1) Hardware failure. 2) Software failure on the module.
001b0020 Access/One hub model {m}: An external error at the net interface has been detected: its state changed to either netFault-auiBad or netFault-mdiBad.	**001b0020** 1) Hardware failure on the module. 2) Hardware failure in the hub.
001b0021 Access/One hub model {m}: Intelligent module in slot {I 1} has detected a parity error: its status has changed to parityErr.	**001b0021** Hardware failure on the module.

Table 9-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
001b0022 Access/One hub model {m}: The fan on the module in slot {I 1} is defective: its status has changed to abnormal.	**001b0022** Hardware failure of fan.
001b0023 Access/One hub model {m}: The ring containing card {I 1} has begun the beacon detect process: its status has changed to beacon DetectInProgress.	**001b0023** 1) Disturbance on the ring. 2) Configuration change of the ring. 3) Hardware problem on a device.
001b0032 Access/One hub model {m}: One or more of the concentrator's ports have been unlocked.	**Not applicable**
001b0033 Access/One hub model {m}: One or more of the concentrator's ports have been locked.	**Not applicable**
001b0034 Access/One hub model {m}: One or more of the concentrator's ports have been auto-segmented by the hardware because of a fault.	**001b0034** 1) Too many collisions 2) Cable problem 3) Hardware problem on device connected to the port.
001b0035 Access/One hub model {m}: One or more of the concentrator's ports have been segmented by the supervisor because of a fault.	**001b0035** Operator action.
001b0036 Access/One hub model {m}: One or more of the concentrator's ports have been forced to allow passive devices to enter the ring.	**Not applicable**
001b0037 Access/One hub model {m}: One or more of the concentrator's ports are no longer being forced to allow passive devices to enter the ring.	**Not applicable**

Table 9-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
001b0038 Access/One hub model {m}: One or more of the concentrator's ports are experiencing a lobe fault. The concentrator experiences voltage (either positive or negative) in only one of the phantom pair wires.	**001b0038** 1) Cable problem. 2) Hardware problem on a device connected to the port.
001b0039 Access/One hub model {m}: One or more of the concentrator's ports are no longer experiencing a lobe fault.	**Not applicable**
001b0040 Access/One hub model {m}: The link test on one or more of the concentrator's ports has been unlocked.	**Not applicable**
001b0041 Access/One hub model {m}: The link test on one or more of the concentrator's ports has been locked.	**Not applicable**
001b0048 Access/One hub model {m}: At least one power module has lost its AC power. Its state changed to acPowerAbnormal.	**001b0048** 1) AC power supply lost. 2) Hardware problem on power supply module.
001b0049 Access/One hub model {m}: The temperature of the power supply has become too high. Its state changed to highTemp.	**001b0049** 1) Defective fan. 2) Airflow obstruction. 3) Environment temperature too high.
001b0050 Access/One hub model {m}: One or more of the interfaces to the network backbone are experiencing faults. Its state changed to netOrSupLoopback.	**001b0050** 1) Connection to the backbone is bad. 2) Backbone is faulty. 3) Faulty network interface.

Table 9-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
001b0051 Access/One hub model {m}: The interface to the network backbone has changed (recovered) by using a redundant connection. The state of the interface to the backbone network has changed to one of netAndSupDirect | supOnly | netOnly | bridgeOnly.	**001b0051** Primary interface is down.
001b0052 Access/One hub model {m}: The temperature of the enclosure has been reported by an enclosure temperature sensor to be out of range (possible enclosure fan failure) or the temperature of at least one card in the enclosure is out of range: the hub's state changed to abnormal.	**001b0052** 1) Airflow obstructions. 2) Room temperature too high. 3) Faulty hub fan.
001b0053 Access/One hub model {m}: The temperature of all cards in the enclosure is now in the proper range or the enclosure temperature has returned to the proper range: the hub's state has changed to normal.	**Not applicable**
001b0054 Access/One hub model {m}: One or both (for a fault tolerant power supply) dc power supplies have failed. The power supply's state has changed to onePsModuleFailed.	**001b0054** Defective power supply.
001b0055 Access/One hub model {m}: The network utilization threshold has been exceeded.	**001b0055** 1) Busy network. 2) Threshold setting too low.
001b0056 Access/One hub model {m}: The enclosure has an airflow problem (probably a defective fan): the state of hubAFS has changed to abnormal.	**001b0056** 1) Defective fan. 2) Airflow obstruction.
001b0064 Access/One hub model {m}: The interpreter on the netcard has detected a login command on the service port.	**Not applicable**

Table 9-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
001b0065 Access/One hub model {m}: The interpreter on the netcard has detected a logout command on the service port.	**Not applicable**
001b0070 Access/One hub model {m}: A change in the configuration of the hub cluster has occurred, slot {I 2}, port {I 3}.	**001b0070** 1) A card has been inserted into the hub. 2) A card has been removed from the hub. 3) A port has been auto-partitioned and forced detachment of the board from the backplane bus by the supervisor.
001b0072 Access/One hub model {m}: the hub has been reset (not the management information).	**001b0072** 1) Operator intervention. 2) Supervisor intervention. 3) Manual reset.
001b0073 Access/One hub model {m}: the link status of port {I 3}, slot {I 2}, has changed {I 4}.	**001b0073** 1) Operator intervention. 2) Supervisor intervention. 3) Manual reset.
001b0074 Access/One hub model {m}: SQE test on port {I 3}, slot {I 2}, is not disabled.	**Not applicable**

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